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AN EMPIRICAL TEST AND EXTENSION OF THE BARTLETT AND GHOSHAL TYPOLOGY OF MULTINATIONAL COMPANIES

This study offers an empirical test and extension of the Bartlett and Ghoshal typology of MNCs. A three-fold typology of multinational companies: global, multidomestic and transnational is induced from the literature. This typology is tested using data from 166 subsidiaries of 37 MNCs, headquartered in nine different countries. Subsidiaries in the three types of MNCs are shown to differ significantly on aspects of interdependence, local responsiveness, control mechanisms and expatriate presence.

INTRODUCTION

Most of the literature in international management either explicitly or implicitly assumes the existence of different types of MNCs. Terms such as polycentric, geocentric and ethnocentric and multidomestic, international, global and transnational are often used to denote different types of MNCs. Several of these typologies have become standard textbook matter and are widely taught in courses on international business and management. There are several reasons why a typology of MNCs can be useful for both academics and students. First, it can reduce the complexity of multinational organizational reality into a manageable number of related characteristics, making it easier to understand and explain the functioning of multinational companies. Second, if meaningful organizational typologies can be discovered they can then be used in a predictive way. When certain characteristics are shown to cluster in distinct typologies, the presence of one or more of these characteristics in other samples can lead to a prediction of the remaining elements. This would make it easier to compare and integrate different studies in the field and may go some way to remedy the “lack of (both) conceptual integration and empirical corroboration” in the field of international business and management (Macharzina & Engelhard, 1991:24). In a final stage, if meaningful typologies of mutually reinforcing characteristics can be derived, these typologies might serve as prescriptive configurations of MNCs. MNCs that conform more closely to these ideal types and that show a fit between environment, strategy, structure and processes would then be expected to outperform MNCs that do not show such a fit.

Up until now, however, very few studies in the international management literature have tried to derive and test comprehensive typologies of MNCs. Bartlett & Ghoshal (1989) probably provided the most extensive typology of MNCs. Bartlett & Ghoshal’s work and in particular their idea of the transnational company has been extremely influential. In a recent book (*International Business: An emerging vision*), in which 12 chapters, all consisting of contributions by various authors, give a comprehensive overview of the field of international business, Bartlett & Ghoshal’s work is referred to in 10 of the 12 chapters. A reference would of course be expected in chapters that discuss the strategic management, organization theory and organizational behavior perspectives on International Business. In addition, however, their work is also referred to in chapters that discuss economic, political, marketing and financial perspectives and in the two introductory and one of the two concluding chapters.

Bartlett & Ghoshal’s research, however, was based on case studies in nine MNCs only, combined empirical data with prescriptive elements, and did not discuss the characteristics of the various types of MNCs in a very systematic way. According to Hedlund and Ridderstråle (1997) empirical grounding of Bartlett & Ghoshal’s study and studies in the same tradition (Hedlund, 1986; Prahalad & Doz, 1987; White & Poynter, 1990) is “sparse and impressionistic, and perhaps colored mainly by the pioneers among the MNCs than a more representative sample” (Hedlund and Ridderstråle, 1997:334). Ghoshal (1997) puts it even more strongly: “most of us [...] are piling up conceptualization upon conceptualization, unencumbered by [...] the discipline of empirical verification.” (Ghoshal, 1997:362).

This article will therefore take Bartlett & Ghoshal’s typology as a starting point, but construct explicit typologies incorporating a larger number of different characteristics. These typologies will then be tested on a large sample of MNCs. In this way, our study could provide a valuable extension of the origi-

nal Bartlett & Ghoshal framework. The remainder of this article is structured as follows. First, we will review and classify previous studies that have tried to construct typologies of MNCs and discuss their strengths and weaknesses. A subsequent section will then describe three hypothesized typologies of multinational companies. The next section then discusses our data collection methodology and the operationalization of the variables included in the three typologies. The results of an empirical test of the three typologies are subsequently described. A final section then summarizes and discusses our findings, indicates the study's limitations and provides recommendations for future research.

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

This section will review previous studies that have tried to construct typologies of MNCs. Some of these studies focused on one or two variables only, usually corporate strategy and structure, while other included a larger variety of characteristics. However, all of the variables included can be summarized under the broad headings: environment, strategy, structure and systems and processes. Under the heading processes the topics that are studied most are control mechanisms and human resource management. Strategy and structure have been studied at both headquarters and subsidiary level. Table 1 summarizes the variables included in MNC typologies.

Table 1: An overview of the variables included in MNC typologies

1.	Environment/industry
2.	Corporate level strategy
3.	Corporate level organizational design
4.	Subsidiary strategy/role
5.	Subsidiary structure
6.	Control mechanisms
7.	Human resource practices

Table 2 briefly summarizes the most important studies that have tried to construct typologies of MNCs. Some of these studies were explicitly presented as attempts at constructing MNC typologies, while others focused on investigating the relationship between two variables, usually strategy and structure. After a description of the studies' sample and results (in case of an empirical study), the fifth column of Table 2 mentions the variables that were included in each of the studies following the numbering in Table 1. The next four columns subsequently categorize the studies' resulting typologies under the four types of firms put forward by Bartlett & Ghoshal.¹ Several conclusions can be drawn from this tabularization. First, although there are substantial differences in the details and the variables that are used to distinguish the different categories, there is a reasonable convergence in the basic characteristics of the categories distinguished by the various authors. Many of the authors refer to others themselves, pointing out comparable notions. It is confusing, however, that some authors use the same terms for different typologies. Adler and Ghadar use three of the terms that Bartlett and Ghoshal use, but all for different typologies. Their description of the global company, however, clearly fits the transnational category, while the same goes for their multinational and international in relation to the global and multidomestic firm. Further, since the publications by Bartlett (1986) and Prahalad & Doz (1987) all authors implicitly or explicitly refer to an integration/coordination/globalization advantages versus differentiation/responsiveness/localization advantages continuum in describing their strategy at either headquarters or subsidiary level. Following Prahalad & Doz, this is usually referred to as the integration/responsiveness framework. Roth & Morisson (1990) and Ghoshal & Nohria (1993) use similar terms to describe the environmental pressures. Even the terms used by Porter (1986) and Doz (1980) are easily related to this continuum, with a dispersed configuration/low coordination and political imperatives located at the responsiveness end and a concentrated configuration/high coordination and economic imperatives located at the integration end. The two earlier publications are not usually seen as typologies and are often used to describe management attitudes and HRM (Perlmutter) and international organizational structures (Stopford & Wells).

Three types of firms are distinguished by nearly every study: multidomestic, combining low integration and high responsiveness, global, combining high integration with low responsiveness and transnational, combining high integration with high responsiveness. The international firm sits somewhat uncomfortably in this scheme. Please note that it was not included in Bartlett's original classification. Some

authors (Sundaram and Black, 1992) simply equate it with the transnational company, while other authors (e.g. Ghoshal and Nohria, 1993; Welge, 1996) place it in the lower left corner (low integration/low responsiveness). Many other authors do not distinguish this particular type of firm, and many of those that did had difficulty in empirically distinguishing it from the others. We will come back to this point later.

In addition to the studies summarized in Table 2, there have been several studies that looked specifically at the subsidiary roles. These studies, however, used a terminology that is not easy to compare with the studies described above and moreover are not easily comparable among themselves. Birkinshaw and Morrison's (1995) present an integration of six different subsidiary strategy typologies. Their local implementer category, however, includes both stand-alone subsidiaries with a full range of value chain activities reproduced in the host country and closely integrated subsidiaries. The study by Martinez & Jarillo (1991) is more easily related to the typologies discussed above in that it distinguishes three different types of subsidiaries: autonomous, receptive and active. These subsidiaries are differentiated with regard to their degree of integration with the group and their degree of localization. Receptive subsidiaries have a high level of integration and a low level of localization, while autonomous subsidiaries show the opposite combination. Active subsidiaries combine high integration with high localization. Although there is no one-to-one link between corporate level strategy and subsidiary level strategy, autonomous subsidiaries will be most likely in companies following a multidomestic strategy, receptive subsidiaries will dominate in global companies and most active subsidiaries will be found in transnational companies. It is important realize, however, that not all subsidiaries in a transnational company will follow an active role. Martinez & Jarillo indicate that in integrated MNCs (global and transnational) most subsidiaries will play a receptive role. The study subsequently shows that a high level of integration is related to a high intensity of coordination or control. Since none of the other studies (including the one by Birkinshaw & Morrison) resulted in clear empirically verified differences between subsidiaries following different strategies and they are not easily related to the concepts used in our own study, we will not discuss these studies any further and will focus on the studies summarized in Table 2.

As is appropriate in the development of new theories, the first studies were mainly descriptive and focused on relatively small samples employing either interviews or in-depth case studies. Later studies have attempted to test the interaction between variables in a more systematic manner. Many of these studies have used the Bartlett & Ghoshal typology as the basis of their study. Below, we will shortly describe the results of the later empirical studies that have attempted to test the Bartlett & Ghoshal typology.

Roth & Morrison (1990) segmented business units in three groups characterized by respectively global integration, local responsiveness and a multifocal approach and related this to four strategic dimensions (complex innovation, marketing differentiation, breath, cost control). The global and multifocal groups were very similar and the locally responsive group scored low on all strategic dimensions, which was not completely as expected. *Roth, Schweiger & Morrison* (1991) constructed two ideal profiles of what they called implementation variables for two types of strategy: global and multidomestic. Control mechanisms (called administrative mechanisms) were a major part of these ideal profiles. Application of these control mechanisms was consistently hypothesized to be lower for multidomestic strategies than for global strategies. The top-5 performers of each strategy type were indeed found to differ significantly in their use of control mechanisms, conforming to the predictions of the conceptually derived ideal types. Further, for the remaining firms, there was a significant positive correlation between the level of fit with the empirically constructed ideal type and performance. It must be noted however, that this study focused on control mechanisms *within* 82 American business units (that *might* also be subsidiaries of MNCs) operating in global industries, rather than on the level and type of control exercised by headquarters towards their subsidiaries and is therefore not comparable to the other studies.

Table 2: Overview of typologies of multinational companies

Authors	Empirical/- Conceptual	Sample ^h	Confirmation of formal hypothesis testing?	Variables included	Multidomestic	International	Global	Transnational
Perlmutter (1969)	Conceptual	---	---	[3], [6], 7	Polycentric		Ethnocentric	Geocentric
Stopford & Wells (1972)	Empirical Interviews	187 American MNCs (Harvard's MNE Project)	Descriptive	2 (% Foreign sales, Product diversity), 3	High FS, Low PD, Area division		Low FS, High PD, Prod- uct division	High FS, High PD, [Global matrix]
Doz (1980)	Empirical Intensive field research	About a dozen MNCs (American and European)	Descriptive	2 (economic and political imperative)	National responsiveness		World-wide integration	Administrative coordi- nation
Porter (1986)	Conceptual	---	---	1,2 (coordination and configuration)	Multidomestic industry; country-centered strategy,		Global industry, Purest global strategy,	Global industry, Strat- egy: high foreign in- vestment with extensive coordination among subsidiaries
Bartlett (1986)	Conceptual/ Empirical	Unclear, a variety of company exam- ples are mentioned	Descriptive	1, 2, 3, {4, 5}, 6, 7	Multinational		Global	Transnational
Prahalad & Doz (1987)	Empirical Interviews	Over twenty American, European and Japanese MNCs	Descriptive	2, 3	Locally responsive strat- egy, autonomous national subsidiaries		Integrated product strat- egy, worldwide business management	multifocal strategy, multifocal/matrix or- ganization
Bartlett & Ghoshal (1989)	Empirical In-depth case studies	3 European, 3 Japanese, 3 American MNCs	Descriptive	1, 2, 3, {4, 5}, 6, 7	Multinational	International	Global	Transnational
Meffert (1989) [our translation]	Conceptual	---	---	2, 3, [4], 6	Multinational	International	Global	Mixed
Gerpott (1990) [our translation]	Conceptual	---	---	2, 6, 7	Multilocal Low centralization		Global High centralization	Hybrid Medium centralization
White & Poynter (1990)	Empirical In-depth case studies	2 American and 1 Japanese MNC	Descriptive	2, 3	Geographic area structure	Domestic functional with international division	Global product structure	[Matrix] Horizontal
Adler & Ghadar (1990)	Conceptual	---	---	2, 3, 7	International		Multinational	Global
Roth & Morrison (1990)	Empirical questionnaires	147 American business units in global industries	Partial confirmation	1,4	Locally responsive		Global integration	Multifocal
Roth, Schweiger & Morrison (1991)	Empirical questionnaires	82 American business units in global industries	Yes, largely confirmed	4, [5], 6	Multidomestic		Global	
Sundaram & Black (1992)	Conceptual	---	---	2,3	Multidomestic		Global	Transnational
Leong & Tan (1993)	Empirical questionnaires	131 senior executives of MNCs around the world	Partial confirmation	2, 3	Multinational	International	Global	Transnational
Ghoshal & Nohria (1993)	Empirical questionnaires	Subsidiaries of 41 MNCs from the US (20), Canada (2) and 7 European countries (19),	Yes	1, 6	Multinational	International	Global	Transnational

Macharzina (1993) <i>[our translation]</i>	Empirical questionnaires	69 German MNCs	No	2, [5], 6	Multinational	International/ Ethnocentric	Global rationalization	Blocked global
Welge (1996) <i>[our translation]</i>	Conceptual	---	---	2	Multinational	International	Global	Dual
Wolf (1996) <i>[our translation]</i>	Empirical questionnaires	39 subsidiaries of American, German and other European MNCs	No	2, 6, [7]	Single market strategy	Selection strategy	Integration strategy	Interaction strategy

Leong & Tan (1992) tried to empirically test Bartlett & Ghoshal's typology on a number of characteristics. They had senior executives of MNCs of all around the world classify their organizations as being multinational, global, international or transnational in nature. They further asked them to evaluate their organization's configuration of assets and capabilities, roles of overseas operations and development and diffusion of knowledge. The global and multinational organization types scored broadly as hypothesized, but the international and transnational type did not differ significantly from each other and from the other types. *Ghoshal & Nohria* (1993) tested the relationship between the environment (classified in terms of integration/responsiveness) and a MNC's governance (control) mechanisms. Companies that have a fit between environment and control mechanisms were shown to outperform companies that did not. *Macharzina* (1993) presented hypothesized levels of interdependence and application models of control mechanisms for MNCs following various international strategies. Unfortunately, the results, arrived at through cluster analysis did not provide a very clear-cut pattern. One of the four clusters that was found did not provide a clear structure at all and was not included in the further analysis, while two others were similar on many of the characteristics included. The study also did not provide much support for the necessary fit between strategy and control mechanisms, since two clusters of firms that followed different strategies had very similar control portfolios. Finally, *Wolf* (1996) identified patterns of strategic orientation of both MNCs and subsidiaries and accompanying levels of certain control mechanisms. However, in the subsequent empirical test little support was found for these ideal profiles.

In sum, as yet empirical studies have not found clear-cut support for a well-developed typology of MNCs. Ghoshal and Nohria did find support for a performance effect of a fit between environment and control. However, their typology focused on a limited number of characteristics only and their classification of the environment was based on relatively crude measures. The classification was also based on a relatively simple above/below the mean criterion that does not necessarily lead to a maximization of inter-group and a minimization of intra-group variety as cluster analysis would. Roth, Schweiger and Morrison also found support for a positive performance effect of a fit between (business unit) strategy and control mechanisms, but make a rather crude distinction between just two types of strategies and a high/low application of various control mechanisms. Leong & Tan did not find clear support of either the transnational or the international type of firm and none of the German studies found support for their predicted patterns of strategy and control.

None of the empirical studies included Japanese companies and in most samples American companies take up a dominant place. As far as can be deduced from their publications, all empirical studies used single informantsⁱⁱⁱ, which might pose problems since many studies also included (only) perceptual measures. Our study will therefore try to remedy the limitations of previous studies by including a larger number of HQ countries (including Japan), by including many of the variables mentioned in Table 1, by combining perceptual measures with more factual measures and by using multiple informants.

HYPOTHESIZED TYPOLOGIES

In this section, we will define our hypothesized typology of multinational companies. Firms will be categorized by the type of strategy (global, multidomestic or transnational) that is followed by corporate headquarters. We decided not to include the international type of firm, since many authors do not include it in their categorization, it is not as clearly defined as the other types and has not received much empirical support. We will then motivate how several corporate level organizational design variables fit these three types of strategies. Subsequently, the expected role and structure of subsidiaries in these types of companies is outlined as is the differential level and type of control that is applied in respect of subsidiaries. Finally, we will discuss how we expect the presence and role of expatriates in subsidiaries to differ for the three types of MNCs. The choice of the elements included in the typologies was directed by the research questions for which the data used in this paper were originally collected. These research questions focused on the role of various headquarters and subsidiary characteristics in explaining the type of control mechanisms used by headquarters in respect of their subsidiaries and on the role of international transfers (expatriation) as a control mechanism. We do recognize that not every subsidiary in a MNC plays the same role (see also Martinez & Jarillo, 1991) and hence that within a MNC we might find subsidiaries that score very differently on the characteristics included in our typologies. However, multidomestic companies will have a relatively high percentage of autonomous subsidiaries, many subsidiaries in global companies will be receptive and active subsidiaries will be most likely for transnational compa-

nies. Therefore, we do expect to be able to find overall differences in the various subsidiary characteristics between the three types of firms.

Corporate strategy and organizational design

Following Bartlett & Ghoshal the strategic orientation of global firms was defined as building cost advantages through realization of economies of scale, while the main strategic thrust of multidomestic firms is to respond to national differences. Transnational companies would have to cope with both strategic demands at the same time. Competition will take place at a global level for both global and transnational companies, while multidomestic firms would be more oriented towards domestic competition, since national products markets are too different to make competition at a global level possible.

The organizational structure of the global company will be centralized and globally scaled and the main role of subsidiaries will be to implement parent company strategies, that is mainly as pipelines of products and strategies (Bartlett & Ghoshal, 1989,1992). The multidomestic firm will be characterized by a decentralized and loosely coupled organizational structure (Bartlett & Ghoshal, 1989,1992). With regard to strategy, the transnational has characteristics of both multidomestic and global firm. In organizational design terms, the transnational is expected to show some unique features as well: it will function as an integrated and interdependent network, subsidiaries can have strategic roles and act as a center of excellence and we would expect to find a large flow of products, people and information *between* subsidiaries. (Bartlett & Ghoshal, 1989,1992). In global companies flows would be expected to go mostly from headquarters to subsidiaries, while multidomestic companies would be characterized by a lower overall flow of products, people and information (see also Perlmutter, 1969).

Interdependence

Interdependence indicates the extent to which various units of a MNC are dependent on each other and hence gives an impression of the level of integration within the MNC as a whole. It is therefore an important element of MNC structure. We distinguish three different levels of interdependence. First *independence*, that is the subsidiary is not or hardly dependent on headquarters or other subsidiaries and is operating very much as a stand-alone company. Second *dependence*, that is the subsidiary is mainly dependent on headquarters. Finally, *interdependence*: the subsidiary, headquarters and other subsidiaries all form part of an interdependent network, they are all dependent on each other. These different types of interdependence cannot be directly linked to Thompson's (1967) classic study, since Thompson does not distinguish between different types of subunits in a company. His reciprocal interdependence, however, is probably most comparable to our *interdependence*. We will come back to this when we discuss the implications of interdependence for control mechanisms.

Bartlett & Ghoshal (1989, 1992) characterize the multidomestic company as a loosely coupled federation of rather independent national subunits. Subsidiaries can be independent from the rest of the company, since their major ties are with the local environment, to which they have to be very responsive (see also below). We would therefore expect the majority of subsidiaries in multidomestic companies to be relatively *independent* from both headquarters and subsidiaries. Since this relationship may seem almost tautological with our description of a decentralized organization, we will have to measure interdependence in a very objective way. Interdependence in our study is therefore measured as the percentage of intra-company sales and purchases in relation to total sales and purchases. Subsidiaries in multidomestic will thus be expected to buy/sell a low proportion of their purchases/sales from both headquarters and other subsidiaries. Macharzina's (1993) study hypothesized low intra-company sales for companies with a multinational strategy, but unfortunately he did not find a multidomestic cluster in his empirical results.

In global companies, on the other hand, operations are typically very much integrated and manufacturing will be concentrated in a limited number of locations. We would therefore expect a high overall level of intra-company sales and purchases. Global companies are often organized according to a hub-and-spoke model (Bartlett & Ghoshal, 1989, 1992) in which many strategic functions, including a large proportion of manufacturing are still centralized at headquarters. Many subsidiaries will have a sales function only, simply transferring products from headquarters to the local market. We would therefore expect the level of interdependence between individual subsidiaries and headquarters to be greater than the level of interdependence between different subsidiaries. Thus in subsidiaries of global companies *dependence* would be more important than *interdependence*.

The transnational company is characterized by Bartlett and Ghoshal as an integrated and interdependent network of different but equivalent subunits, in which headquarters does not a priori play a dominant role. Subsidiaries can also act as a strategic center for a particular product or process and can have specialized roles. In transnational companies, we would therefore also expect a relatively high level of intra-company sales and purchases. However, since strategic functions such as production might very well be assumed by specialized subsidiaries, we would expect the level of interdependence between different subsidiaries to be higher than the level of interdependence between individual subsidiaries and headquarters. In other words, in subsidiaries of transnational companies *interdependence* would be more important than *dependence*. Since transnational companies will have receptive subsidiaries as well, we expect the level of HQ dependence to be higher than for subsidiaries of multidomestic companies. Macharzina (1993) predicted and found a high level of intra-company sales for both global and transnational firms, but unfortunately did not differentiate between subsidiaries and headquarters.

Local Responsiveness

Local responsiveness is defined as the extent to which subsidiaries respond to local differences in customer preferences. There are several ways in which responsiveness to local differences can be conceptualized. First of all, products can be actively adapted to differences in local taste and preferences. Since being locally responsive is a key strategic requirement for both multidomestic companies and transnational companies, we would expect a relatively large proportion of products that are sold by their subsidiaries to be consciously adapted or modified to the local market. In many industries that are traditionally characterized as multidomestic, such as for instance the food industry (Bartlett & Ghoshal, 1989; Kobrin, 1994; Porter, 1986; Rall, 1989), adaptation of products is also easier and less costly than for global products such as computers. As the key strategic requirement for global companies is to manufacture standardized products in a cost-efficient way, we would not expect their subsidiaries to sell a high proportion of products modified for the local market.

In a more limited sense, local responsiveness might involve adaptation of marketing to local circumstances to make products more appealing to a variety of customers. Because both multidomestic companies and transnational companies place high importance on local responsiveness, we would expect that for products sold by subsidiaries of these companies a high percentage of marketing is consciously adapted to local circumstances. In subsidiaries of global companies, that try to sell relatively standardized products world-wide, we would expect a much lower extent of marketing adaptation. However, since adaptation of marketing is a rather easy and not too expensive way to be responsive to local markets, we would expect the difference for this measure to be lower than for product modification.

Although local production and local R&D are not absolutely essential for a company to be locally responsive, a local presence in this respect does make it easier. Having production and R&D close to the end customer makes it easier to pick up and perform the adaptations that are required to successfully sell the product in a country. Global companies are less likely to locate these parts of the value chain close to the customer, since they will feel less need to access this type of market information. We would therefore expect products sold by subsidiaries of both multidomestic and transnational companies to have a higher local production and R&D content than products sold by subsidiaries of global companies. However, since transnational companies also have to respond to the demand for cost efficiency by focusing on economies of scale, they would not be as prone as multidomestic companies to duplicate value chain activities. Subsidiaries of transnational companies would therefore be expected to be less likely to perform local production and R&D and hence products sold by subsidiaries of transnational companies are expected to have a lower local production and R&D content than products sold by subsidiaries of multidomestic companies.

Control Mechanisms

Introduction

Control mechanisms can be defined as the instruments that are used to make sure that all units of the organization strive towards common organizational goals. Numerous control mechanisms have been identified. However, an extensive literature review (Harzing, 1999b), covering authors such as March & Simon (1958), Lawrence & Lorsch (1967), Child (1973, 1984), Galbraith (1973), Ouchi (1977, 1979, 1980), Mintzberg (1979, 1983), Merchant (1985), Kenter (1985), Bartlett & Ghoshal (1989), Martinez &

Jarillo (1991) and Hennart (1991) resulted in a synthesis of four major types of control mechanisms as summarized in Table 1.

Table 1: Classification of control mechanisms on two dimensions

	Personal/Cultural (founded on social interaction)	Impersonal/Bureaucratic/Technocratic (founded on instrumental artefacts)
Direct/Explicit	Category 1: Personal centralized control	Category 2: Bureaucratic formalized control
Indirect/Implicit	Category 4: Control by socialization and networks	Category 3: Output control

Personal centralized control. This control mechanisms denotes the idea of some kind of hierarchy, of decisions being taken at the top level of the organization and personal surveillance of their execution. Terms used by various authors to describe this control mechanism are: centralization, hierarchy and direct personal kind of control.

Bureaucratic formalized control. The control mechanisms in this category are impersonal (also called bureaucratic) and indirect. They aim at pre-specifying, mostly in a written form, the behavior that is expected from employees. In this way, control can be impersonal because employees can and should refer to the “manual” instead of directly being told what to do. Terms used by various authors to describe type of control are: bureaucratic control, formalization, rules, regulations, paper system and programs.

Output control. The main characteristic of this category is that it focuses on the outputs realized instead of on behavior (as the other three control mechanisms do). These outputs are usually generated by the use of reporting or monitoring systems and can take any form from rather general aggregated financial data to detailed figures regarding sales, production levels, productivity, investments, etc. The key element that distinguishes this control mechanism from the two previous ones is thus that instead of particular courses of action certain goals/results/outputs are specified and monitored by reporting systems. Terms used by various authors to describe type of control are: result control, plans, output control, goal setting.

Control by socialization and networks. The fourth type of control mechanism is mainly defined by what it is not: it is not hierarchical, it is not bureaucratic, there are no fixed targets, it is usually not very formal. We can distinguish three main sub-categories in this broad category. *Socialization*, which can be defined as ensuring that employees share organizational values and goals, that is are socialized into a common organization culture. Another frequently used term is cultural control. *Informal, lateral or horizontal exchange of information:* The use of non-hierarchical communication as a control mechanism. Terms used are: mutual adjustment, direct (managerial) contract, informal communication and coordination by feedback. *Formalized lateral or cross-departmental relations.* This category has the same objectives as the second one, increasing the amount of (non-hierarchical) information processing, with the difference that in this case the relationships are (temporarily) formalized within the organizational structure. Examples are task forces, cross-functional teams, integrative departments. As a common denominator for this category, we propose the term: *control by socialization and networks*. Networks comprize both the second and third sub-category, as the aim of both mechanisms is to create a network of communication channels that supplements the formal hierarchy. The term network was chosen because in organization theory it is frequently used to denote non-hierarchical relations.

Total level of control

How would we expect the three organizational models to differ with regard to the application of various control mechanisms? Let us first look at the total level of control that is exercised. Headquarters in multidomestic MNCs, in which subsidiaries are relatively independent, operate as stand-alone companies and are very responsive to the local market, would be expected to exercise a lower level of control towards their subsidiaries than headquarters in global or transnational MNCs. Macharzina (1993) and Wolf (1996) predicted a substantially lower level of control in their multidomestic companies, but unfortunately did not find any clear support.^{iv} We would expect, however, that if any control is exercised towards subsidiaries in multidomestic companies, headquarters would choose for one of the more indirect ways of control: output control or control by socialization and networks. Bartlett and Ghoshal (1989, 1992) saw socialization as the dominant control mechanism for multidomestic MNCs, but unfortunately did not include output control.

Another way to look at the issue of control is to link in our discussion of interdependence and local responsiveness. Many authors hypothesize and/or find, either explicitly or implicitly that a higher level of

interdependence leads to a higher level of control. Anderson and Forsgren (1995a/b) for instance predict the extent of subsidiary embeddedness to be positively related to the amount of control exercised by headquarters. Martinez and Jarillo (1991) characterize subsidiaries concerning their interdependence in relation to headquarters and other subsidiaries and found that the higher the amount of interdependence, the higher the total amount of control exercised. Many of the 'centralization' studies discussed below also adhere to the positive relationship between interdependence and control levels, as they (implicitly) regard centralization as the only control mechanism available. Since, as argued above, subsidiaries in global and transnational companies would be expected to show a higher level of interdependence, they would also be expected to show a higher level of total control.

Unfortunately, there is only one study (Martinez & Jarillo, 1991) that deals explicitly with the concept of local responsiveness at subsidiary level in relation to control. Martinez and Jarillo studied the relationship between various subsidiary characteristics and the amount of control exercised by headquarters towards a particular subsidiary and found that local responsiveness was negatively related to the total level of control exercised by headquarters. Since subsidiaries of transnational and multidomestic companies would be expected to show a higher level of local responsiveness, they would also be expected to show a lower level of control. This combined reasoning would then lead us to expect the lowest level of control for subsidiaries of multidomestic companies, the highest level of control for subsidiaries of global companies and a medium level of control for subsidiaries of transnational companies, since they combine a high level of interdependence with a high level of local responsiveness.

Personal centralized control

In our discussion about control, we did, however, distinguish four different types of control mechanisms. For subsidiaries of multidomestic companies, we already indicated that we expected a particularly low level of personal centralized control and bureaucratic formalized control and a medium level of output control and control by socialization and networks. This leaves us to discuss the application of different types of control mechanisms for subsidiaries of global and transnational companies. A limited number of authors have discussed the application of personal centralized control in MNCs. Bartlett and Ghoshal (1989, 1992) claim that centralization is the dominant control mechanisms in global companies. Gerpott (1990) suggests that centralization will be highest for global strategies, lowest for multidomestic strategies and in between for 'hybrid' (transnational) strategies. Welge (1987) contends that within integrated global structures there will be less room for autonomy for subsidiaries. Macharzina (1993) and Wolf (1996) predict a high level of centralization in companies following respectively a global rationalization and integration strategy. We would indeed expect personal centralized control to be rather high for global companies as they are characterized by a centralized hub structure in which headquarters takes the most important decisions. In the integrated network type of structure that characterizes the transnational, subsidiaries can have a more strategic role, which would make centralization of decision-making less feasible. In addition, global companies are not spread as much geographically (Porter, 1986) as multidomestic and transnational firms, which would make centralization of decision-making at headquarters level much easier.

A similar conclusion can be drawn by looking at the impact of interdependence on personal centralized control. Various authors have focused on the effect of interdependence on the level of centralization (an element of our personal centralized control) and have generally found this relationship to be positive. Garnier (1982) found both affiliate sales to headquarters and affiliate purchases from headquarters to be strongly related to centralization. Welge (1982) also found the dependence of a subsidiary on the parent company to be the most important factor in determining the level of centralization. Martinez and Ricks (1989) found a strong positive relationship between subsidiary dependence on headquarters and headquarters influence over subsidiaries. In Forsgren and Pahlberg's (1992) study of the relationship between division management and subsidiaries in Sweden, resource *independence* is related to autonomy. Finally, Quester and Conduit (1996) argue that the greater dependence of a parent company on its foreign operations, the greater the risk to the parent company and the stronger the tendency to centralize all decisions. All of these studies therefore link a high level of *dependence*, that is a dependency relationship between headquarters and individual subsidiaries to a high level of centralization. Since subsidiaries of global companies were expected to show higher level of *dependence* than subsidiaries of transnational (and

multidomestic) companies, we would also expect these subsidiaries to show a higher level of personal centralized control.

Bureaucratic formalized control

Concerning *bureaucratic formalized control*, very few previous studies are available. Some authors referred to under the heading control by socialization and networks contrast informal control with bureaucratic control and claim the latter to be less applicable in transnationals. Schreyögg (1993) claims that in transnational firms bureaucratic control is not possible since rules have to be formulated 'ungenau und instabil'. A more focused motivation can be found in Macharzina and Wolf (1996). They refer to the fact that global companies try to sell standardized products, which would make a high level of standardization a logical choice. Transnationals are much more differentiated and have to act in very flexible way. This would make standardization and formal procedures less feasible. We would expect, however, that the level of bureaucratic formalized control in subsidiaries of transnational companies would be somewhat higher than in subsidiaries of multidomestic companies. This is mainly induced by the expected higher level of interdependence (and more notably *dependence*) in subsidiaries of transnational companies, although again empirical support is much more limited than for personal centralized control. Hedlund (1981) found a positive correlation between cross-shipments of goods and the level of formality of headquarters-subsidiary relationships and Macharzina (1993) found a strong positive relationship between interdependence and standardization of both policies and processes in all functional departments of 69 German MNCs.

Output control

Unfortunately, output control has not been investigated in most studies on control mechanisms. To our best knowledge, there are no empirical or conceptual studies that investigate the differential application of output control in subsidiaries of the three different types of MNCs. With regard to the investigation of the impact of interdependence on the level of output control, we have been able to find only one study. Egelhoff (1988) used nine measures of dependency, among which intra-company sales and purchases, to measure the influence on the level of output control for marketing, manufacturing and financial. Only one of the 27 correlations was significantly positive. The two indirect control mechanisms: output control and control by socialization and networks are more likely to be used in situations with high environmental variability, complex technology and limited knowledge of the transformation process (Child, 1984:168). All MNCs, regardless of the specific strategy they use, operate in an uncertain global environment. Because of their size and diversity they will use complex technologies and headquarters will have a limited knowledge of the transformation process. Further, output control in our study is operationalized as financial reporting and planning and budgeting systems and we would expect all MNCs to use these control mechanisms to some extent. Therefore, in view of the lack of theoretical and empirical rationale for a differentiation in the level of output control in subsidiaries of different types of MNCs, we do not offer any hypotheses and predict a medium level of application in all three types.

Control by socialization and networks

Quite a number of authors have argued for the extensive use of informal control mechanisms (our *control by socialization and networks*) in transnational firms. Egelhoff (1993) discusses the information-processing implications of transnationalism. One of the specific information-processing implications is that 'the Use of Non-routine-Reciprocal Information-Processing Mechanisms will need to be Significantly Expanded' (Egelhoff, 1993:206) Egelhoff suggests various horizontal information processing mechanism that are able to perform this role: direct contact, task forces, integrating roles and teams. In his 1986 publication Hedlund describes a heterarchical (his term for transnational) firm. One of the characteristics of this type of firm is that integration is achieved primarily through normative control. Hedlund and Ridderstråle (1992) comment that to prevent the N-form corporation (yet another term for a transnational type of firm) from breaking down or falling apart, control mechanisms will be used that are more subtle and focused on the lateral dimension. Socialization and informal communication between employees will be the key mechanisms. In addition, international task forces are also important. White and Poynter (1990) describe how the horizontal organization (their name for a transnational company) is held together 'by a flexible horizontal network, accompanied by lateral decision processes and, underlying it all, a common

set of shared premises upon which decisions are based and actions assessed.’ (White and Poynter, 1990:98). *Martinez and Jarillo* (1989) suggest that changes in the international environment and international competition (from multidomestic and global to transnational) has resulted not only in changing strategies and structures for multinational companies, but also in a change in the combination of coordination mechanisms used by multinational companies. The complexity and uncertainty of a transnational environment, however, has forced multinational firms to adopt what Martinez and Jarillo call ‘more informal and subtle coordination mechanisms’.

Referring to our assumption of a high level *interdependence* in transnational companies allows us to draw in another line of argument. Specifically, we would expect that where headquarters-dependent subsidiaries can more easily be managed by personal centralized control and bureaucratic formalized control, subsidiary-dependent subsidiaries would rather be managed by the more informal control by socialization and networks. Thompson (1967) indicated that while the other types of interdependence could be managed by formalization and output control, reciprocal interdependence had to be managed by mutual adjustment, which is similar to the informal communication aspect of our control by socialization and networks. As subsidiary-dependent subsidiaries are less directly dependent on headquarters, they are likely to resist the more direct control mechanisms, leaving the more informal and flexible control by socialization and networks as an alternative. Some support for this argument is found in the studies by Gupta and Govindarajan (1994) and Wolf (1994). Gupta and Govindarajan distinguish four different types of subsidiaries, with different levels of lateral interdependence with peer subsidiaries. In general, these subsidiaries’ scores on lateral integration (our formal networks), corporate-subsidiary and inter-subsidiary communication and socialization were positively related to their level of subsidiary dependence. Wolf (1994) found the level of shared values to be higher when sister subsidiaries were the subsidiary’s main partners than when headquarters was the subsidiary’s main partner. Both sets of arguments would thus lead us to expect a higher level of control by socialization and networks towards subsidiaries of transnational companies than towards subsidiaries of global (and multidomestic) companies.

Expatriation

A final element of our typologies is the presence and role of expatriates in subsidiaries of the three types of MNCs.^v Although there is an abundance of literature on many of the more operational or individual aspects of expatriate management, such as selection, adjustment, cross-cultural training, compensation and repatriation, there have been few published studies that systematically discuss the relationship between firm strategy and the presence and role of expatriates in subsidiaries of these MNCs. In his classification of ethnocentric (global), polycentric (multidomestic) and geocentric (transnational) firms, Perlmutter (1969) predicts a preference for parent country nationals (PCNs) in subsidiaries of ethnocentric firms and host country national in subsidiaries of polycentric firms. In geocentric firms nationality is thought to be unimportant. Edström and Lorange (1984) compared four Swedish MNCs and found that the two that followed a global strategy had a higher level of expatriates in their subsidiaries than the two companies that followed a country-based (multidomestic) strategy. They indicate that in global companies, the interdependent elements of the company should be managed by people that are familiar with the strategy of the corporation as a whole. Having local managers might lead to sub-optimal decisions in these integrated companies. Following the same rationale, Richards (1997) finds strong support for her hypothesis that expatriate presence is higher in subsidiaries of companies that follow a global strategy. The latter two studies distinguish global and multidomestic companies only, while it is unclear how the mix of nationalities will work out in practice in Perlmutter’s geocentric firms. Since interdependence is also expected to be rather high for subsidiaries of transnational companies, we would expect a relatively high level of expatriate presence in these subsidiaries as well.

Another way to explain a differential level of expatriate presence could be the required level of local responsiveness in a subsidiary. If for the subsidiary in question local responsiveness is important to function effectively, as would be the case in most subsidiaries of multidomestic and transnational companies, headquarters is likely to leave the running of operations to local managers. Local managers will be more aware of local differences in tastes and preferences. This would plead for a lower level of expatriate presence in both multidomestic and transnational companies.

There is another reason, however, why we would expect a relatively high level of expatriate presence in subsidiaries of transnational companies and this is related to the functions of international transfers.

Expatriates can be sent out for a variety of reasons, including management development and the transfer of technical or managerial knowledge. However, an important element of many expatriate assignments, linked to our discussion above, will be direct or indirect control of subsidiary operations. Direct control is executed when the expatriate is assigned to a subsidiary mainly to supervise whether decisions taken at headquarters are adequately carried out. Indirect control is much more subtle and involves the socialization of host country managers into a common corporate culture and the creation of informal communication networks through expatriate presence. Socialization and informal communication are two elements of our control by socialization and networks as discussed above. This type of control was expected to be very important in subsidiaries of transnational companies. Although the relationships has not yet been tested empirically, numerous authors see expatriates as one of the best methods to achieve this type of control (see e.g. Bartlett and Ghoshal, 1995; Derr and Oddou, 1993; Edström and Galbraith, 1977; Egelhoff, 1988; Evans, 1991; Horng, 1993; Jaeger, 1983; Kenter, 1989; Kobrin, 1988; Kuin, 1972; Kumar, 1993; Macharzina, 1993; Pausenberger and Glaum, 1993; Rall, 1989). We would therefore expect a relatively high presence of expatriates not only in global companies, but in transnational companies as well.

With regard to the two different control functions of expatriation, we would expect a relatively high level of direct expatriate control in subsidiaries of global companies, since this type of control fits well with their emphasis on personal centralized control. Following the same line of reasoning, a low level of direct expatriate control would be expected in subsidiaries of multidomestic companies. Although personal centralized control in subsidiaries of transnational companies is expected to be low, we do expect some extent of direct expatriate control in view of the interdependence of a transnational's operations. Directly following from our discussion above, we would expect a high level of indirect expatriate control in subsidiaries of transnational corporations. Since indirect expatriate control is not as necessary to achieve control by socialization and networks in subsidiaries of global and multidomestic MNCs, it is expected to be lower in these subsidiaries. Table 3 summarizes the hypothesized relationships described in this and the previous sections.

Table 3: *Typologies of multinational companies*

Organizational strategy	Multidomestic	Global	Transnational
Organizational design & subsidiary role			
• Decentralized federation	High	Low	Low
• Network structure	Low	Low	High
• Inter-subsidiary flows	Low	Low	High
• HQ's pipeline	Low	High	Low/medium
• Center of excellence	Low	Low	High
Interdependence			
• Total level of interdependence	Low	High	High
• Level of HQ dependence (<i>dependence</i>)	Low	High	Medium
• Level of subsidiary dependence (<i>interdependence</i>)	Low	Low	High
Local responsiveness			
• Local production	High	Low	Medium
• Local R&D	High	Low	Medium
• Product modification	High	Low	High
• Adaptation of marketing	High	Low/Medium	High
Level and type of control			
• Total level of control	Low	High	Medium
• Level of personal centralized control	Low	High	Low
• Level of bureaucratic formalized control	Low	High	Medium
• Level of output control	Medium	Medium	Medium
• Level of control by socialization and networks	Medium	Medium	High
Level and type of expatriation			
• Extent of expatriate presence	Low	High	High
• Direct expatriate control	Low	High	Medium
• Indirect expatriate control	Low	Low	High

METHODOLOGY

Data Collection and Sample

Data for the study were collected by means of a large-scale international mail survey, mailed from Maastricht University, the Netherlands. The survey involved mailing questionnaires to CEOs and Human Resource Managers at the headquarters of 122 MNCs and to the managing directors of some 1650 wholly owned subsidiaries of these multinationals in 22 different countries. With regard to subsidiary countries, 6 of the 8 commonly distinguished cultural clusters (see e.g. Ronen & Shenkar, 1985) are present in reasonable numbers in our sample (Anglo, Germanic, Nordic, Latin European, Far East and Latin American). Headquarters were located in the US, Japan and seven European countries (UK, France, Germany, Sweden, Finland, the Netherlands and Switzerland) and operated in eight different industries (electronics, computers, motor vehicles and parts, petroleum products, food & beverages, pharmaceuticals, paper and industrial chemicals). Since the number of responses at headquarters level (25 for HRM managers and 26 for CEOs) was too small to allow statistical analysis, this paper only uses the data collected at subsidiary level, although some data from the CEO sample are used for verification.

As response rates usually increase with pre-contacts respondents received an announcement postcard - which shortly explained the nature of the study and indicated four typical questions to which the survey might give an answer - about a week before the questionnaire was due to arrive. Questionnaires for the final mailing^{vi} were mailed in two batches: one in October 1995 and one in January 1996. Reminders to the first batch were sent in January 1996, about three months after the original mailing. Reminders to the second batch were sent in March 1996, about six weeks after the original mailing. Questionnaires were printed on a pale yellow paper and cover letters were mail merged for an individualized appeal. The questionnaire was six pages long and contained 56, mostly closed-ended questions. At the back of the last page of the questionnaire, the return address (an international business reply number) was printed in such a way that respondents could return the questionnaire by folding it in three and taping/stapling it. No postage or envelope was needed. A response card, including the respondent's name and address, was included with the questionnaire. Respondents could use this response card to indicate that they did not want to participate in the survey or to indicate that they had sent back the questionnaire anonymously by separate post.

Incentives to increase response rates included an offer of the results, an international committee of recommendation^{vii}, a scanned photograph of the researcher and a tea bag attached to the letter, next to a PS: "Why don't you take a short break, have a nice cup of tea and fill out the questionnaire right now, it will only take 10-15 minutes". In the reminder, we elaborated on this theme by including instant coffee for the addressees that did not like tea. The international committee of recommendation was hypothesised to increase both the "local content" of the survey and the sense of importance of the project. The overall response rate at subsidiary level was 20%, varying from 7.1% in Hong Kong to 42.1% in Denmark (see Harzing, 1997 & 1999b for an analysis of response rate differences). The total number of 287 subsidiary responses represents 104 different headquarters (85% of our population) and the number of responses per headquarters varied from one to eleven.

Measures^{viii}

Since no questions were readily available to measure the *corporate strategy*, we created our own questions, based on the characteristics of the different types of firms as described in Bartlett & Ghoshal (1989, 1992). Four statements were constructed that measured whether competition was predominantly global or local and whether the corporate strategy was focused on achieving economies of scale or on achieving local differentiation. It was expected that global companies would be characterized by global competition and a strategy to achieve economies of scale (Bartlett & Ghoshal's cost efficiency), while multidomestic companies would predominantly compete on a domestic level and strive for national responsiveness. Transnational companies would be expected to combine global efficiency and national responsiveness, while probably competing at a global level. As with the other variables, information about corporate strategy was collected from subsidiary managers. Subsidiary managers, however, might not be fully informed of the strategy applied by the MNC as a whole and their perception of this strategy might be influenced by their own characteristics. We took various measures to resolve this problem. First of all we decided to exclude all headquarters for which we had less than three responses from the analysis in

order to limit the chance that our results would be influenced by single respondent peculiarities. This reduced our sample size to 208 subsidiaries. Subsequently, we performed a cluster analysis on the four questions measuring headquarters strategy, setting the number of clusters at three. As Table 4 shows, the results conform very closely to our conceptual typology. A first group, which is labeled multidomestic, combines a high score on national responsiveness with a high score on domestic competition and scores lowest on both global competition and economies of scale. The second group has an opposite profile, high global and low domestic competition, a low level of national responsiveness and a high level of economies of scale. All differences between the global and multidomestic cluster are significant at a 0.001 level of significance. Firms in the transnational cluster combine a focus on national responsiveness and economies of scale. They differ from multidomestic companies in their higher focus on economies of scale ($p = 0.03$, 1-tailed) and from global companies in their higher focus on national responsiveness ($p = 0.000$). Competition for these firms is mostly global although they score slightly higher on domestic competition than firms in the global cluster ($p = 0.0502$, 1-tailed).

Table 4: Scores of the three clusters on the four strategy variables

Cluster names	Global competition	Domestic competition	National responsiveness	Economies of scale
Multidomestic	3.25	3.71	3.83	3.27
Global	4.11	2.21	2.86	3.91
Transnational	4.02	2.50	3.85	3.71
Chi-square	23.685, 0.000	59.927, 0.000	45.883, 0.000	9.739, 0.008

* Means covered by the same line are not significantly different at a 0.05 level of significance

Our second step was to verify whether different subsidiaries of the same MNC shared the same opinion on the type of corporate strategy that was followed in their company. To this end we made a cross-tabulation of the cluster membership for the 46 headquarters included in our sample. In nearly half of the cases (22), the cluster membership was the same for each of the subsidiaries. In another 15 cases only one of the subsidiary managers had a different opinion. Since in all these cases the deviant cluster membership was in a cluster that was most similar to the cluster that the other subsidiary managers had identified (i.e. multidomestic/transnational or global/transnational), these cases were accepted as showing a shared perspective on their corporate strategy. In another 9 cases, however, subsidiaries were placed in three different clusters. These headquarters were therefore removed from further analysis, resulting in a final sample of 166 subsidiaries representing 37 headquarters. These were subsequently compared to the data gathered at headquarters level. Unfortunately, we had information at headquarters level for only 8 of the 37 headquarters. However, for these 8 headquarters, scores on the four strategy variables were broadly comparable to subsidiary scores for each company^{ix}. When subsidiary responses were rounded to the nearest integer^x, a difference between headquarters and subsidiary score occurred in only 7 of the 32 comparisons. The difference between headquarters and subsidiary scores was never larger than 1 (on a five-point scale) and in none of the companies did the scores for more than one variable differ between headquarters and subsidiaries. We therefore feel we can have a reasonable amount of confidence in the accurateness of subsidiary scores on the strategy variables. As for corporate strategy, *corporate organizational design* questions were also based on characteristics of the different types of firms as described in Bartlett & Ghoshal (1989, 1992).

As indicated above *interdependence* was operationalized using a relatively objective measure: the percentage of intra-company sales and purchases. In order to be able to distinguish between *dependence* and *interdependence*, respondents were to differentiate between their purchases from or sales to headquarters and subsidiaries. *Local responsiveness* was measured with four items asking for the percentage of local R&D and local production incorporated in products sold by the subsidiary and the percentage of products and marketing that was substantially modified for the local markets. To measure the four different *control mechanisms* identified above, we adapted and supplemented the questions that were used by Martinez & Jarillo (1991). Two or three questions were put forward for each control mechanism and since these were shown to form reliable scales scores they were added to arrive at a total score for each of the four control mechanisms. Three questions were used to assess the *presence of expatriates* in a given subsidiary. These questions asked respectively for the nationality of the managing director, the number of top five jobs held by expatriates and the total number of expatriates working in the subsidiary. *Direct expatri-*

ate control was assessed by asking the respondent to indicate the degree to which headquarters uses expatriates to directly control the subsidiary's operations. *Indirect expatriate control* was measured by asking the respondent to assess the importance of two functions of international transfers: the improvement of information channels and the transfer of corporate culture.

As will be understood from the discussion above, our study used perceptual measures to operationalize some of the constructs. This was done because of the not immediately quantifiable nature of for instance strategy and control mechanisms. Although for some of these constructs quantification would have been possible, it would have made the questionnaire longer and more complicated, thus reducing the likelihood of a high response rate.

RESULTS

In this section, we will empirically test the typologies that have been theoretically derived above. In order to do so, we have reproduced the theoretical predictions in Table 5. In addition, the table includes the mean levels of the different variables for each of the three main organizational models. Before calculating the mean levels, all variables were standardized, since different scales had been used for different variables. Column 5 of Table 5 then first of all indicates whether the differences between the three organizational models were in the expected direction. Since the distribution of most variables was found to be non-normal (K-S Lilliefors test of normality), nonparametric tests were applied. The Chi-square value resulting from a Kruskal-Wallis Anova analysis subsequently reveals whether there is an overall difference between the three models. Finally, the sixth column summarizes which of the pairs are different at a 0.05 level of significance (Mann-Whitney tests).

Organizational design

The result for most of our organizational design variables conformed to our predictions. Respondents in subsidiaries of companies with a multidomestic strategy indicated a significantly higher agreement with the statement that their company could be characterized as a decentralized network. A network structure was seen as most typical for the companies with a transnational strategy, although the difference was only significant between transnational and global companies. As predicted, inter-subsiary flows of products, people, knowledge and information were seen as most common in transnational companies as were subsidiaries taking on the role as a center of excellence. Conforming to our hypothesis, subsidiaries with a "pipeline" role were seen as most likely by subsidiaries from companies with a global strategy.

Interdependence

As expected, subsidiaries of both global and transnational companies expose a higher total level of interdependence than subsidiaries of multidomestic companies. Further, as predicted, the level of *dependence*, that is dependence on headquarters for purchases and sales, is highest for subsidiaries of global companies and lowest for subsidiaries of multidomestic companies, while subsidiaries of transnational companies fall between these two extremes. The results with regard to *interdependence*, that is dependence on other subsidiaries for purchases and sales are in the expected direction, in that this is highest for subsidiaries of transnational companies. However, differences are more modest than for *dependence* and the difference is only significant between subsidiaries of transnational and global companies.

Local Responsiveness

Concerning *local responsiveness*, differences conform to our predictions to a large extent. Product modification is indeed significantly more likely in subsidiaries of transnational and multidomestic companies. As was expected, the smallest difference was found for adaptation of marketing. Conforming to our expectations, however, adaptation of marketing was higher for subsidiaries of transnational and multidomestic companies than for subsidiaries of global companies. The results for local production show that this is indeed most likely in subsidiaries of multidomestic companies and least likely in subsidiaries of global companies, while subsidiaries of transnational companies fall in between. The same is true for local R&D, although in this case subsidiaries of transnational companies are not significantly different from either subsidiaries of global ($p = 0.058$, one-tailed) or subsidiaries of multidomestic companies ($p = 0.12$, one-tailed).

Table 5: Test of typologies of multinational companies

Corporate strategy	Multidomestic	Global	Transnational	Exp. Diff. ?/ Chi-square	Pairs diff. at 0.05 (1-tailed)
Corporate organizational design					
• Decentralized federation	High .56	Low -.35	Low/medium -.05	Yes 24.884, .000	M>T>G
• Network structure	Low .25	Low -.44	High .40	Partly 23.026, .000	T&M>G
• Inter-subsidiary flows	Low -.17	Low -.23	High .51	Yes 16.249, .000	T>M&G
• HQ's pipeline	Low -.50	High .52	Low/medium -.25	Yes 34.324, .000	G>M&T
• Center of excellence	Low -.12	Low -.19	High .40	Yes 9.312, 0.10	T>M&G
Interdependence					
• Total level of interdependence	Low -.47	High .23	High .13	Yes 15.454, .000	G&T>M
• Level of HQ dependence	Low -.57	High .42	Medium -.05	Yes 28.401, .000	G>T>M
• Level of subsidiary dependence	Low -.03	Low -.16	High .21	Partly 4.342, .114	T>G
Local responsiveness					
• Local production	High .44	Low -.28	Medium .07	Yes 17.506, .000	M>T>G
• Local R&D	High .30	Low -.25	Medium .05	Yes 7.847, .020	M>G
• Product modification	High .41	Low -.39	High .15	Yes 20.524, .000	M&T>G
• Adaptation of marketing	High .09	Low/Medium -.22	High .23	Yes 6.089, .048	T&M>G
Level and type of control					
• Total level of control	Low -.31	High .23	Medium -.02	Yes 8.384, .015	G>M
• Level of personal centralized control	Low -.34	High .31	Low -.12	Yes 13.034, .001	G>M&T
• Level of bureaucratic formalized control	Low -.25	High .21	Medium -.05	Yes 7.387, .025	G>M
• Level of output control	Medium -.09	Medium .05	Medium -.16	Yes 1.523, .467	None
• Level of control by socialization and networks	Medium -.14	Medium -.12	High .32	Yes 7.322, .026	T>M&G
Level and type of expatriation					
• Expatriate presence	Low	High	High		
Number of expatriates	-.40	.10	.25	Yes 21.115, .000	G&T>M
% PCN as MD	-.36	.15	.16	Yes 7.846, .020	G&T>M
Number expatriates in top-5	-.48	.24	.13	Yes 17.415, .000	G&T>M
• Direct expatriate control	Low -.23	High .09	Medium .03	Partly 2.331, .312	None
• Indirect expatriate control	Low -.14	Low -.01	High -.06	No .7760, .695	None

Control Mechanisms

The total level of control did, as predicted, differ among the three organizational models, with the highest level of control exercised towards subsidiaries of global companies, the lowest level of control towards subsidiaries of multidomestic companies and a medium level of control towards subsidiaries of transnational companies. Subsidiaries of transnational companies, however, were not significantly different from either subsidiaries of multidomestic ($p = 0.06$, one-tailed) or subsidiaries of global companies ($p = 0.16$, one-tailed). As hypothesized, the dominant control mechanisms towards subsidiaries of multidomestic subsidiaries were indirect control mechanisms: output control and control by socialization and networks. A high level of the two direct control mechanisms: personal centralized control and bureaucratic formalized control was indeed exercised towards subsidiaries of global companies, while the application of the two indirect control mechanisms was around average. Application of personal centralized control, output control and control by socialization and networks towards subsidiaries of transnational companies was as expected: low, medium and high. Although, the level of application of bureaucratic formalized control towards subsidiaries of transnational companies did indeed take a middle position, it

was not significantly different from subsidiaries of multidomestic companies ($p= 0.13$, one-tailed) or subsidiaries of global companies ($p= 0.11$, one-tailed).

Expatriation

A final issue on which the three types of firms were hypothesized to differ was the level and type of expatriation. Expatriate presence was expected to be rather high in subsidiaries of both global and transnational firms, and low in subsidiaries of multidomestic firms. As can be seen in Table 5, this prediction could be confirmed for all three measures of expatriation. The results for expatriate control are less convincing however.^{xi} Contrary to our expectations, there were no significant differences in the application of direct expatriate control between subsidiaries of the three types of MNCs, although the difference between subsidiaries of global and multidomestic companies only very nearly missed the 0.05 level of significance ($p=0.06$, one-tailed). Differences in indirect expatriate control are very modest indeed and it is unexpectedly high in subsidiaries of multidomestic companies. This lack of significant differences for the two control functions of expatriation led us to investigate whether there were any significant differences on any of the other functions of expatriation that were included in our survey that could explain a differential presence of expatriates. This analysis showed that subsidiaries of multidomestic companies are less likely to have expatriates because of training for headquarters ($p = 0.021$, one-tailed and $p = 0.027$, one-tailed when compared with subsidiaries of transnational and global companies respectively). Subsidiaries of transnational companies are more likely to have expatriates because of knowledge transfer ($p = 0.04$, one-tailed and $p = 0.002$, one-tailed when compared with subsidiaries of multidomestic and global companies respectively).

DISCUSSION AND CONCLUSIONS

Overall, the results of our empirical tests provided a reasonably level of support for our hypothesized typologies. With regard to the organizational design variables the only unexpected result was the relatively high score of multidomestic companies on the network structure. This might have been caused by the second part of the statement that was used to measure the network structure: “headquarters does not a priori play a dominant role”. Although the first part of the statement would not be applicable to multidomestic companies, the second part of the statement might have led some respondents to agree to some extent to the statement as a whole. A further analysis of the responses for subsidiaries of multidomestic companies showed that none of the respondents either strongly agreed or strongly disagreed with the statement, indicating that it might have been an ambiguous question for many respondents.

Some other differences were in the expected direction, but did not differ as strongly between the three types of companies as expected. This was true for the level subsidiary dependence, the level of local R&D, the total level of control and the level of bureaucratic formalized control. In the latter three of these cases subsidiaries of multidomestic companies were significantly different from subsidiaries of global companies, but although subsidiaries of transnational companies occupied the predicted middle position they did not differ significantly from either subsidiaries of global or subsidiaries of multidomestic companies. In two of the six comparisons, however, differences were significant at a more relaxed .10 level of significance. With regard to subsidiary dependence, subsidiaries of transnational companies did differ significantly from subsidiaries of multidomestic companies on the level of sales to other subsidiaries, but not on the level of purchases from other subsidiaries.

Although the results with regard to expatriate presence conformed completely to our expectations, few differences were found with regard to either direct expatriate control and indirect expatriate control, although subsidiaries of multidomestic companies were different from subsidiaries of global companies on direct expatriate control at a more relaxed .10 level of significance. Further analysis showed that differences in expatriate presence might be partly explained by a differential importance of other functions of expatriation. Expatriation to train managers for positions at headquarters was less important for subsidiaries of multidomestic companies, which might be a reflection of the weaker overall links between headquarters and subsidiaries in this type of companies. Expatriation for knowledge transfer was particularly important in subsidiaries of transnational companies, which could be related to the importance of learning in this type of company (Bartlett & Ghoshal, 1989, 1992).

In spite of some insignificant results, our study was able to distinguish three types of MNCs that differed systematically on a number of important characteristics. *Global companies*, which operate in indus-

tries with rather standardized consumer needs that make the realization of economies of scale very important. Since price competition is very important, the dominant strategic requirement is efficiency, and these companies therefore integrate and rationalize their production to produce standardized products in a very cost-efficient manner. Subsidiaries in global companies are usually very dependent on headquarters for their sales and purchases, and are not supposed to respond actively to the local market demands in terms of for instance product adaptation. If they are locally responsive, it is most likely to be in the area of marketing adaptation. The total level of control exercised by headquarters towards these subsidiaries is rather high. A high level of the two direct control mechanisms - personal centralized control and bureaucratic formalized control - mainly causes this. The indirect control mechanisms: output control and control by socialization and networks are not used to a higher than average extent. Expatriate presence in subsidiaries of this type of companies is high and there is a slight tendency for these expatriates to fulfil a direct control role.

On many aspects *multidomestic companies* are the reverse of global companies. Products or services are differentiated to meet differing local demands, and policies are differentiated to conform to differing governmental and market demands. Local demand is determined by cultural, social and political differences between countries. Subsidiaries operate relatively independently from other subsidiaries and especially headquarters, in a sense that they buy/sell a very low proportion of their input/output from headquarters or other subsidiaries. They are responsive to the local market, and adapt both products and marketing to local circumstances. This is made easier by the fact that products are often produced locally and contain a large proportion of local R&D. Not surprisingly, the total level of control exercised by headquarters towards these subsidiaries is rather low. Especially the two direct control mechanisms: personal centralized control and bureaucratic formalized control are used to a very low extent, while the use of output control and control by socialization and networks lies around average. Expatriate presence is also rather low and the role of expatriates is slightly less likely to lie in directly controlling subsidiary operations than in global companies.

In a sense, a *transnational company* combines characteristics of both global and multidomestic companies, in that it tries to respond simultaneously to the sometimes-conflicting strategic needs of global efficiency and national responsiveness. Expertise is spread throughout the organization with large flows of people, products and knowledge between subsidiaries and subsidiaries can serve as a strategic center for a particular product-market combination. Subsidiaries in this type of company are more dependent on other subsidiaries for their in- and outputs than on headquarters, which confirms the network type of organizational structure, that is typical for transnational companies. Subsidiaries are usually also responsive to the local market. Products and marketing are adapted for local markets and there is a higher proportion of local production and R&D than in subsidiaries of global companies. The total level of control exercised towards subsidiaries in transnational companies is slightly lower than for global companies. This is mainly due to a low level of personal centralized control. Bureaucratic formalized control and output control are only slightly lower than average. An important characteristic of subsidiaries of transnational companies is the high level of control by socialization and networks that is exercised towards them by headquarters. Expatriate presence in subsidiaries is also rather high and a major role of these expatriates is to transfer knowledge from headquarters to subsidiaries.

Our study did not suffer from some of the "usual" limitations in this field. First, its sample included MNCs and subsidiaries from a large number of countries. Further, only companies where we had multiple responses were included in the final sample, thus alleviating the problems associated with the key respondent approach. Even so, the sample size was relatively large since our response rate was higher than for many other studies. However, the study is not without its own limitations. First, although every care was taken to formulate questions as unambiguously as possible, our study used perceptual measures to operationalize some of the constructs. Answers to some of our questions might therefore contain an element of perception. In addition, many of our concepts were measured with single items and where we used multiple items (as in the case of control mechanisms), the reliability of the scales was modest (0.67-0.73). Now that the feasibility of testing typologies of MNCs has been shown, future researchers might decide to focus on a more limited number of well-motivated characteristics and use more complex measures to operationalize the various constructs. Second, in spite of the fact that our study has a much larger geographical spread than previous studies, some areas have been neglected. Although Japanese MNCs were included in the survey, our study did not include any other Asian MNCs (e.g. from Hong Kong, Singa-

pore, South Korea, Taiwan, Thailand, Malaysia). Ulgado et al. (1994) report that MNCs from Asian developing countries show patterns that resemble Japanese firms, with regard to expatriation, control and structure. However, since developments in this region become increasingly important, also for the Western world, it would be worthwhile to include MNCs from this region in future studies. Unfortunately, in view of the large cultural differences between “East” and “West” this would aggravate the problems associated with cross-cultural research and make multi-cultural research teams indispensable. At subsidiary level, Eastern European, Middle-Eastern and African subsidiaries were not included in our survey. Again, additional problems associated with cross-cultural research should not be taken lightly, although at subsidiary level many of the respondents will be (Western) expatriates (Harzing, 1999a). In addition, response rates to mail surveys in South East Asian countries are typically very low (see Harzing, 2000).

This study set out to test and extend Bartlett & Ghoshal’s typology of MNCs. Our results showed that their typology, based on in-depth case studies of nine MNCs, could be confirmed in a large-scale empirical setting and further extended our knowledge about the relationship between MNC strategy, organizational design and subsidiary characteristics. It would be too early, however, to consider these three MNC types as ideal-type configurations with the associated positive performance effects of a fit between the various configurational elements. In order to be able to do so, future researchers would need to carefully choose variables to be included in the configurations and measure them in a more sophisticated way than we have been able to do in this study. They would also need to devise objective performance measures that are comparable across countries. We hope that by providing evidence of the feasibility of testing MNC typologies on a larger scale, we have made the future task of a more complex configuration type of analysis a less daunting one.

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APPENDIX

Construct: corporate strategy

(Likert scale 1-5, scale anchors: strongly disagree-strongly agree)

- *Our company's strategy is focused on achieving economies of scale by concentrating its important activities at a limited number of locations.*
- *Our company's competitive position is defined in world-wide terms. Different national product markets are closely linked and interconnected. Competition takes place on a global basis.*
- *Our company's competitive strategy is to let each subsidiary compete on a domestic level as national product markets are judged too different to make competition on a global level possible.*
- *Our company not only recognizes national differences in taste and values, but actually tries to respond to these national differences by consciously adapting products and policies to the local market.*

Construct: organizational design

(Likert scale 1-5, scale anchors: strongly disagree-strongly agree)

- *In our company, a typical subsidiary's main function is to deliver company products and carry out headquarters' strategies.*
- *In our company subsidiaries regularly act as a strategic center for a particular product or process, in other words subsidiaries regularly perform a role as 'center of excellence'.*
- *Our company can be adequately described as a very loosely coupled and decentralized federation of rather independent national subunits.*
- *Our company can be adequately described as an integrated and interdependent network of different but equivalent subunits, in which headquarters does not a priori plays a dominant role.*
- *In our company, there are not only large flows of components and products, but also of resources, people and information among company's subsidiaries.*

Construct: interdependence

(Six point scale 0%, 1-25%, 26-50%, 51-75%, 76-99%, 100%)

- *Please give your best estimate of the percentage of purchases (incl. parts/semi-manufactured articles) from headquarters in relation to the total amount of purchases of this subsidiary.*
- *Please give your best estimate of the percentage of purchases (incl. parts/semi-manufactured articles) from other subsidiaries of the group in relation to the total amount of purchases of this subsidiary.*
- *Please give your best estimate of the percentage of the yearly output (incl. parts/semi-manufactured articles) of this subsidiary that is sold or delivered to headquarters.*
- *Please give your best estimate of the percentage of the yearly output (incl. parts/semi-manufactured articles) of this subsidiary that is sold or delivered to other subsidiaries of the group.*

Construct: local responsiveness

(Six point scale 0%, 1-25%, 26-50%, 51-75%, 76-99%, 100%)

- *Please give your best estimate of the % of R&D incorporated into products sold by this subsidiary that is actually performed by this subsidiary.*
- *Please give your best estimate of the % of company products sold by this subsidiary that have been manufactured (to any degree) by this subsidiary.*
- *Please give your best estimate of the % of company products sold by this subsidiary that have been created or substantially modified for this market.*
- *Please give your best estimate of the % of marketing for company products sold by this subsidiary that is consciously adapted to local circumstances.*

Construct: control mechanisms

(Likert scale 1-7)

Total control

Unweighted average of the four different control scales

Personal centralized control (Cronbach's α : .67)

- Centralization aspect (reversed scored): *In some multinational firms, (strategic) decision-making is largely centralized at headquarters, in other firms subsidiaries have a large amount of autonomy. In general, what is this subsidiary's autonomy to decide its own strategies and policies? (scale anchors: very little autonomy-very high autonomy)*
- Direct supervision aspect: *In some multinational firms headquarters' managers strive for a close personal surveillance on the behavior of their subsidiaries. Other firms do not use this kind of direct personal supervision. Please indicate the degree of personal surveillance that headquarters' managers execute towards this subsidiary. (scale anchors: very little surveillance-very high surveillance)*

Bureaucratic formalized control (Cronbach's α : .73)

- Standardization aspect: *In some multinational firms, all subsidiaries are supposed to operate in more or less the same way. In other firms, such standardized policies are not required. In general, what is the degree of standardization that headquarters requires from this subsidiary? (scale anchors: very low standardization-very high standardization)*
- Formalization aspect: *Some multinational firms have written rules and procedures for everything and employees are expected to follow these procedures accurately. Other firms do not have such strict rules and procedures, or if they have, there is some leniency towards following them. Please indicate the kind of rules and procedures that headquarters exerts towards this subsidiary. (scale anchors: very loose/no procedures-very strict procedures)*

Output control (Cronbach's α : .70)

- Output evaluation aspect: *Some multinational firms exert a high degree of output control, by means of a continuous evaluation of the results of subsidiaries. Other firms exert very little output control beyond the requirement of occasional financial reports. Please indicate the degree of output control that headquarters exerts towards this subsidiary. (scale anchors: very little output control-very high output control)*
- Planning aspect: *Some multinational firms have a very detailed planning, goal setting and budgeting system, that includes clear-cut (often quantitative) objectives to be achieved at both strategic and operational level. Other firms have less developed systems. Please indicate the type of planning/goal setting/budgeting that headquarters uses towards this subsidiary. (scale anchors: very simple/no planning-very detailed planning)*

Control by socialization and networks (Cronbach's α : .68)

- Socialization aspect: *Some multinational firms attach a lot of value to a strong 'corporate culture' and try to ensure that all subsidiaries share the main values of the firm. Others do not make these efforts (or, having made it, have had no success). To which extent do the executives in this subsidiary share the company's main values? (scale anchors: no shared values at all-fully shared values)*
- Informal communication aspect: *Some multinational firms have a very high degree of informal communication among executives of the different subsidiaries and headquarters. Other firms do not foster that kind of informal communication and rely exclusively on formal communication channels. Please indicate the level of informal communication between this subsidiary and headquarters/other subsidiaries of the group. (scale anchors: no informal communication at all-daily informal communication)*
- Formal networks aspect: *Some multinational firms make extensive use of committees/task forces/project groups, both temporary and permanent, made up by executives from different subsidiaries and headquarters. To what extent have this subsidiary's executives participated in this kind of groups in the past couple of years? (scale anchors: no participation at all-very high participation)*

Construct: expatriation

Expatriate presence

- *How many of the top five jobs in this subsidiary are held by expatriates (employees on temporary assignment from either headquarters or other subsidiaries)? Tick boxes 0-5.*
- *What is the nationality of the managing director of this subsidiary? Tick boxes: nationality of parent/headquarters country, nationality of subsidiary country, other (third country) nationality*
- *Please indicate the number of expatriates currently working in this subsidiary.*

Expatriate control

- *Direct expatriate control: In some multinational firms, parent country nationals are assigned to subsidiaries to ensure that headquarters' policies are carried out. Others do not send out expatriates or do this for other reasons. Please indicate the degree to which headquarters uses expatriates to directly control this subsidiary's operations. (Likert scale 1-7, scale anchors: very little expat control-very high expat control)*
- *Indirect expatriate control: Expatriation in MNCs can have various functions. Please indicate how important the following functions are for expatriates working in your subsidiary. (Likert scale 1-5, scale anchors: of very little importance-of utmost importance)*
 - *Improving information and communication channels with HQs or other subsidiaries of the group.*
 - *Ensuring a homogeneous corporate culture throughout the company as a whole.*

NOTES

ⁱ Since we prefer to use the term multinational as a general terms for companies operating internationally, we have substituted Bartlett and Ghoshal's multinational with the comparable term multidomestic.

ⁱⁱ Where descriptions of the sample are vague, this is due to lack of information in the original publication.

ⁱⁱⁱ Roth, Schweiger and Morisson did assess inter-rater reliability in a pre-test with 17 respondents from 6 companies. They do not, however, report the results of this test and indicate that it was based on a convenience sample with a limited number of respondents (2-3 for each business unit).

^{iv} Roth, Schweiger and Morisson's (1991) study distinguished global and multinational firms and related these to a differential application of control mechanisms, but their focus was on control mechanisms *within* business unite, rather than on the level and type of control exercised by *headquarters* towards their subsidiaries.

^v In our study we only asked questions about expatriation from headquarters to subsidiaries. Of course individuals can also be transferred from subsidiaries to headquarters or between subsidiaries. Although this type of expatriation is increasing, in most companies the dominant type of transfer is still from headquarters to subsidiaries.

^{vi} A pilot mailing was sent to 96 subsidiaries in 12 different countries at the beginning of June 1995. In the pilot mailing respondents were invited to note down any difficulties they had in answering the questions. Most remarks involved questions that were not completely clear. These questions were adjusted. The questionnaire was also sent to all members of the committee of recommendation, academics in 20 different countries. In general, the questionnaire was very well received. However, quite a number of recommendations were made concerning the wording of questions and scale markers. In addition, some questions were thought to be too difficult to answer for subsidiary managers. Most of the recommendations were included in the final version of the questionnaire and a number of questions were deleted.

^{vii} The final committee consisted of the following members (in alphabetical order). Prof. dr. John Dunning, Rutgers University, USA; Prof. dr. Paul Evans, INSEAD, France; Dr. Anthony Ferner, University of Warwick, United Kingdom; Dr. Carlos Garcia Pont, IESE, Spain; Prof. dr. Gunnar Hedlund, Stockholm School of Economics, Sweden; Prof. dr. Martin Hilb, Hochschule St. Gallen, Switzerland; Prof. dr. Geert Hofstede, IRIC, The Netherlands; Dr. Jorma Larimo, University of Vaasa, Finland; Prof. dr. Christian Maroy, Université Catholique de Louvain, Belgium; Dr. Aahad Osman-Gani, Nanyang Business School, Singapore; Prof. dr. Jaap Paauwe, Erasmus University, The Netherlands; Prof. dr. Victor Prochnik, Federal University of Rio de Janeiro, Brazil; Prof. dr. Gordon Redding, University of Hong Kong, Hong Kong; Prof. dr. Marino Regini, IRES Lombardia, Italy; Dr. Oscar Risso Patrón, Universidad Argentina John F. Kennedy, Argentina; Prof. dr. Arndt Sorge, Humboldt Universität, Germany; Prof. dr. Bill Roche, University College Dublin, Ireland; Prof. dr. Danny Van Den Bulcke, Universiteit Antwerpen, Belgium; Prof. dr. Yoko Sano, Keio University, Japan; Prof. dr. Udo Wagner, Universität Wien, Austria; Dr. Steen Scheuer, Copenhagen Business School, Denmark; Dr. Denice Welch, Norwegian School of Management, Norway.

^{viii} The items used to operationalize each of the variables can be found in the appendix.

^{ix} Because of the small size of the CEO sample, we decided not to perform a cluster analysis on the four variables and compare actual scores on the four strategy variables between headquarters and subsidiaries instead.

^x Where scores for the individual questions were not completely identical for the different subsidiary answers, the average score resulted in a non-integer value. This then subsequently had to be rounded to the nearest integer in order to compare it with the single headquarters answer.

^{xi} Please note that we only compared subsidiaries with at least one expatriate in this case, since subsidiaries without expatriates would logically assign a low importance to any of the types of expatriate control.