

**The Integration-Responsiveness framework –
Development and empirical analysis of a three-level perspective**

ABSTRACT

One of the most influential concepts for the analysis of MNCs is the Integration-Responsiveness (IR) framework which builds on forces for local responsiveness and forces for global integration to categorize MNCs' international strategies. However, most studies that apply this framework do not distinguish between three relevant levels: forces of the external environment, corporate strategy of the MNC and subsidiary strategy.

In this paper, we offer an empirical test and an extension of the IR framework into a three-level typology. Based on a sample of 349 MNC subsidiaries, the study shows that the IR framework can be applied on all three levels. Moreover, the study reveals that the three levels are closely associated with each other but that deviations of the MNC strategy from the forces of the environment and of the subsidiary strategy from the MNC strategy are common.

The Integration-Responsiveness framework – Development and empirical analysis of a three-level perspective

INTRODUCTION

One of the most recognized frameworks for the analysis of MNCs origins from the work of Doz, Prahalad, Bartlett and Ghoshal in the 1980s (e.g. Doz & Prahalad, 1981; Bartlett, 1986; Bartlett & Ghoshal, 1989). The tension between external forces towards adaptation to the local environment in the different host countries (“local responsiveness”) and forces towards a worldwide coordinated behavior (“global integration”) are the underlying dimensions of their proposed typology.

While both forces are interconnected, they are not seen as opposing extremes of a continuum of possible situations but as two separate dimensions so that they can be illustrated in a matrix (Ghoshal & Nohria, 1993). The independence of both dimensions is not undisputed (Taggart, 1998; Prahalad & Doz, 1987) but this question is not in the focus of this paper. From the typologies that are based on these two dimensions, the four-type model developed by Bartlett and Ghoshal (1989) (“Integration-Responsiveness framework”, IR framework) is most commonly utilized. Large-scale empirical investigations into the model have long been missing but the studies by Leong & Tan (1993) and by Harzing (2000) have provided extensive analyses.

A noteworthy aspect of the model is that it is based on “external forces” but it usually does not put “environmental situations” in the four cells of the matrix but instead categorizes MNCs by their corporate strategies (Kujala & Sajasalo, 2009; Taggart, 1998), into “international organizations”, “global organizations”, “multinational organizations”, and “transnational organizations”. We concur with Devinney, Midgley, & Venaik (2000) in that it is necessary to explicitly discuss and to investigate whether the two dimensions characterize exogenous forces or endogenous strategies. This distinction is often not undertaken. “The primary use of the ,I-R grid’ was to map industries, and therefore to indicate what strategy a firm *should* pursue” (Westney & Zaheer, 2001, pp. 356-357) (*italics added by the authors*) and

Bartlett, Ghoshal, & Beamish (2008, p. 199) clearly state: “industry characteristics alone do not determine company strategies.” But frequently, applications of the framework directly link industry forces to corporate strategies in a deterministic manner where the two dimensions of the matrix do not unambiguously describe the cells of the matrix because dimensions and cells are usually at different levels. In this regard, the framework is strongly rooted in the traditional view of the industrial-organization theory (Morrison & Roth, 1993). The strategic choice of MNCs (Child, 1972) is often neglected and it is not yet been tested whether this contingency relationship between industry forces and MNC corporate strategy really holds (Devinney, Midgley, & Venaik, 2000).

Furthermore, the IR grid does usually not distinguish between the MNC and a specific subsidiary (Martinez & Jarillo, 1991). As Jarillo & Martinez (1990, p. 501) point out: “the fact that a multinational corporation (MNC) may be following a ‘global strategy’ tells us very little about the strategy of a particular subsidiary of that firm.” However, none of the both studies that applied the IR framework on the level of subsidiaries (Jarillo & Martinez, 1990; Taggart, 1998) investigates to which degree both levels are really associated to each other.

So, while the IR framework is usually illustrated in a single matrix, it would be more useful for international business and more consistent with modern models of the MNC to clearly distinguish between three different levels in this model: (1) The external forces that influence an industry and/or a firm, (2) the corporate strategy and (3) the strategy of a specific subsidiary of the MNC in a specific foreign country. In all, while the two dimensions “local responsiveness” and “global integration” seem to be adequate on all three levels (Westney & Zaheer, 2001; Taggart, 1997), they are not necessarily identical on all levels. Usually it is assumed, following the industrial-organization perspective and an internal fit perspective, that MNCs align their corporate internationalization strategy to the external forces and that all subsidiaries are following the corporate strategy of the MNC. Indeed, only in one article it is explicitly mentioned that receptive subsidiaries (a term that Jarillo & Martinez (1990) use for the case equivalent of a global strategy on the subsidiary level) “are likely to be found in global firms competing in global industries” (Taggart,

1998, pp. 664-665). In previous papers, links between different levels have been indicated by a few authors (e.g. Morrison & Roth, 1993, Devinney, Midgley, & Venaik, 2000; Birkinshaw & Morrison, 1995; Jarillo & Martinez, 1990; Harzing, 2000) but an empirical test of these relationships has not yet been undertaken.

The research questions in this paper are whether the IR framework can be applied on all three levels and, if yes, how closely these three levels are related to each other.

LITERATURE REVIEW

In the 1990s, the tension between global integration and local responsiveness came into the focus of IB research and the IR framework was developed (Doz, Bartlett, & Prahalad, 1981; Doz & Prahalad, 1981; Bartlett, 1986; Bartlett & Ghoshal, 1987; Prahalad & Doz, 1987; Bartlett & Ghoshal, 1989). Rooted in a tension that has already been discussed in the 1960s (Fayerweather, 1969), it developed a two-dimensional model. Eventually, all those typologies can be traced back to the dimensions “integration, coordination, globalization advantages” and “differentiation, responsiveness, localization advantages” (Doz, 1980; Doz, Bartlett, & Prahalad, 1981; Bartlett, Ghoshal, & Beamish, 2008), which are linked to the concepts “integration” and “differentiation” of organizational theory (Lawrence & Lorsch, 1967):

- A MNC operates under heterogeneous conditions in different host countries. In each country, the local subsidiary is confronted with local customers and host governments, different market structures and different competitors. Multinational flexibility, i.e. the ability of a company to exploit the opportunities that arise from this heterogeneity, is necessary. The pressure to adapt to the local conditions differs, though, e.g., with the industry. This contingency condition for MNCs is usually labeled “*forces for local responsiveness*” (Ghoshal & Nohria, 1993; Prahalad & Doz, 1987).
- The different countries and markets can, however, be linked to each other. Such links can emerge, for instance, because economies of scale are particularly high in a specific industry, leading to the necessity of internationally standardized products. Alternatively, links can result from comparative cost advantages of a country that offer an incentive to specialize the activities of certain foreign subsidiaries,

leading to interdependence between the worldwide processes. Necessity for worldwide learning, in order to exploit knowledge companywide that has been created in a particular country, or the situation in which relevant actors around the MNC (customers, competitors, suppliers) are the same in different foreign markets, enhance the requirement and the potential to coordinate the different international activities closely. These interdependencies between countries lead companies to coordinate its international activities more closely. Thus, the MNC is exposed to so called “*forces for global integration*” (Ghoshal & Nohria, 1993; Prahalad & Doz, 1987).

The resulting matrix, the so called IR framework, usually contains four different “MNC organization types” (Taggart, 1998, p. 664) or “MNC strategies” (Bartlett, Ghoshal, & Beamish, 2008), the international strategy, the global strategy, the multinational strategy, and the transnational strategy which are characterized in detail in literature (Bartlett, Ghoshal, & Beamish, 2008, Leong & Tan, 1993; Harzing, 2000).

The main points of critique on this model are that the typology has been based on case studies in only nine MNCs, that it combines empirical-descriptive results with prescriptive statements and that the characteristics of the various types of MNC strategies are not discussed in a systematic way (Harzing, 2000). Empirical grounding of the IR framework, based on large-scale representative sample, is sparse (Hedlund & Ridderstråle, 1997; Harzing, 2000). Leong & Tan (1993) provided results that clearly identified the global and the multinational corporate strategy while the distinction between the transnational and the international type was not significant. Other authors propose three-fold typologies and do not consider the international type conceptually or they cannot identify this type empirically (Bartlett 1986; Prahalad & Doz, 1987; Harzing, 2000; Johnson, 1995; Roth & Morrison, 1990).

Numerous studies constructed similar typologies of MNC strategies (e.g. Roth & Morrison, 1990; Roth, Schweiger, & Morrison, 1991; Sundaram & Black, 1992; Pla-Barber, 2002) which have been summarized by Harzing, 2000). While different variables and dimensions make a direct comparison impossible, she shows that the types that were identified are largely congruent.

In particular the transnational organization (Prahalad & Doz, 1987, labeled it the “multi-focus firm”) caused intensive discussion. When Bartlett and Ghoshal (1989) introduced their model, based on a number of company cases, they diagnosed that none of the analyzed companies reached this “ideal”. Instead, an organization type was created conceptually that Bartlett and Ghoshal considered to be a future success model with regard to the changing environmental conditions (Leong & Tan, 1993; Devinney, Midgley, & Venaik, 2000). Empirical studies on the level of the MNC (e.g. Leong & Tan, 1993; Pla-Barber, 2002; Gupta & Govindarajan, 2000) as well as on the level of the subsidiary (Jarillo & Martinez, 1990) consistently show that the transnational model is rarely found in MNCs and that it is, instead, more an idealized MNC model (Birkinshaw & Morrison, 1995; Andersson & Forsgren, 1995). Thus, it has to be concluded that with regard to the transnational organization, the discussion on the IR framework has a strongly prescriptive character (De la Torre, Esperanca, & Martínez, 2003).

Corporate strategies and strategic orientations of the MNC

Considering the different proposed levels of the investigation, the majority of studies consider the IR framework as a categorization of MNC strategies. Authors use the terms “internationalization strategy” (Macharzina, 1993; Harzing & Sorge, 2002), “corporate strategy” (Harzing, 2000), “international strategy” (Randøy & Li, 1998; Bartlett, Ghoshal, & Beamish, 2008), or “strategic orientation” of the MNC (Devinney, Midgley, & Venaik, 2000). The last term clearly links the IR model to the concept of Perlmutter who sees his related typology rather as a “states of mind” (Perlmutter, 1969). The type of organization is more a general attitude of the management with regard to the reaction to respective industry forces; the mentality of management plays an important role (Doz, Bartlett, & Prahalad, 1981; Bartlett & Ghoshal, 1987). Devinney, Midgley, & Venaik, 2000) define the strategic international orientation as vision, philosophy and value system of management that characterizes the preferences of management for a specific positioning of the MNC in the IR frame.

PROPOSITION OF A 3-LEVEL PERSPECTIVE

While the matrix illustration of Bartlett and Ghoshal seems to imply that organizations are categorized, it is really a contingency model in which the external forces are used to predict the corporate strategy of the MNC. Furthermore, it is usually implicitly assumed that the corporate strategy of the MNC is automatically valid for the subsidiary strategy as well with regard to the integration and responsiveness. This is not in line with the numerous articles that describe MNCs as “differentiated networks” (e.g. Ghoshal & Nohria, 1989; Nohria & Ghoshal, 1997). Those models argue that the specific characteristics of the foreign subsidiary (in particular the local conditions in the host country) exert a strong influence on the subsidiary strategy which leads to substantial heterogeneity between the subsidiaries of the same MNC.

For a more detailed analysis of the IR framework, an extension on three levels may therefore be beneficial. The general structure of our concept is presented in Figure 1. The IR framework (or related frameworks) have previously applied at the level of the industry (Bartlett, 1986; Porter, 1986; Morrison & Roth, 1993), mostly on the level of the MNC (Leong & Tan, 1993; Macharzina, 1993; Johnson, 1995; Harzing, 2000) but also on the level of the subsidiary (Jarillo & Martinez, 1990; Taggart, 1998).

display Figure 1 about here

Thus, there is evidence that the IR dimensions can be used to describe the external context (the industry forces), the corporate strategy and the subsidiary strategy. However, most studies do not explicitly distinguish between the different levels or it is – implicitly – assumed that the IR types on the three levels are congruent.¹ We explicitly distinguish between the levels but posit – in a number of hypotheses – a clear association between the three levels.

Corporate strategy of the MNC: industry forces as external context

In the original conceptualization of the IR framework, it creates a typology of different environments. For instance, Ghoshal & Nohria (1993, p. 25) explicitly use the framework “to classify MNC

environments in terms of the twin demands of global integration and national responsiveness”. Different from most other illustrations of the framework, they develop four cells that they label as “multinational environment”, “international environment”, “global environment” and “transnational environment” (Ghoshal & Nohria, 1993, p. 27).

From the classification of the environment, it is concluded which corporate strategy a MNC should incorporate (Westney & Zaheer, 2001), indicating environmental contingencies (Ghoshal & Nohria, 1993). De la Torre, Esperanca, & Martínez (2003) demand a match between the “perceived intensity of globalization forces” and the “coordination/integration efforts” of the company. In their study, they show that a fit between external environment and integration effort is leading to enhanced performance of the company relative to a situation of an “over-structured organization” or an “under-structured organization”. Similarly, Yip (1991) argues that the globalization of the strategy has to be aligned to the globalization potential of the industry.² In this perspective, the frame is, thus, rooted in the industrial organization theory (Morrison & Roth, 1993) and it reflects – mostly implicitly – the assumption of a “environment-strategy” contingency (Melin, 1992; Buckley, 1996). This assumption is criticized for being over-deterministic (Morrison & Roth, 1993) because it neglects the strategic choice of MNCs (Child, 1972). Devinney, Midgley, & Venaik (2000) point out that the relatively deterministic approach of the IR framework does not help to explain different positions of MNCs that are exposed to the same set of external forces. In a more detailed model, they show that the industry forces are only a part of the influence factors on the chosen strategy of a MNC.

On the other hand, a relationship between the environment and the corporate strategy can be expected since the external environment creates certain pressures. A basic assumption of strategic management is that a strategy has to be developed under consideration of the influence of the external environment (Chandler, 1962). A coalignment of strategic fit between the corporate strategy and its context is considered to have a significant impact on the firm’s performance (Venkatraman & Prescott,

1990; Roth, Schweiger, & Morrison, 1991). Linking this contingency assumption to the IR framework, we posit the following hypotheses:

H1. In “international environments” (that are characterized by low forces for local responsiveness and low forces for global integration), MNCs most likely follow an international corporate strategy.

H2. In “multinational environments” (that are characterized by strong forces for local responsiveness and low forces for global integration), MNCs most likely follow a multinational corporate strategy.

H3. In “global environments” (that are characterized by low forces for local responsiveness and strong forces for global integration), MNCs most likely follow a global corporate strategy.

H4. In “transnational environments” (that are characterized by strong forces for local responsiveness and strong forces for global integration), MNCs most likely follow a transnational corporate strategy.

Subsidiary strategy: corporate strategy of the MNC as internal context

While early studies mainly build on the assumption that a MNC coordinates all subsidiaries in a uniform way, most recent studies take the perspective of MNCs as differentiated networks with heterogeneous subsidiaries. “Variations within such MNCs can be as great as variations across them” (Nohria & Ghoshal, 1997, p. 12). As a consequence, it is not adequate to coordinate these heterogeneous subsidiaries in a standardized manner. But even though Bartlett and Ghoshal frequently refer to the increasingly differentiated roles of foreign subsidiaries (e.g. Bartlett, 1986; Bartlett & Ghoshal, 1989; Bartlett & Ghoshal, 1986; Nohria & Ghoshal, 1997), the IR framework rarely distinguishes between the MNC and its subsidiaries (Martinez & Jarillo, 1991).

Considering that the basic premise of the framework is a contingency relation, it is surprising that the heterogeneity of the environments that the subsidiaries of a single MNC are exposed to, is only considered

on the headquarter level for a strategic and within the MNC uniform decision instead of a consideration for each specific subsidiary. If a MNC follows a global strategy, the framework implicitly assumes that all foreign subsidiaries are “global” (i.e. they do not adapt to the local environment and they are strongly integrated in the MNC). If the MNC is overall “transnational”, it is assumed that there are horizontal relations between all subsidiaries, headquarter control is low and that all foreign subsidiaries act “transnational” (i.e. they simultaneously adapt to the local environment and are integrated into the MNC). In particular for this corporate strategy – but similar for the others – it becomes evident that it is actually typical for a transnational strategy that some subsidiaries are controlled very tightly by the headquarters, integrated in the MNC, offering standardized products in their host countries whilst others have to respond to local conditions in their host countries, operating very flexibly and independent of the rest of the MNC. It seems likely – rather regardless of the basic corporate strategy – that the subsidiary of a US MNC in Canada will differ in its specific local strategy from its peer subsidiary in Indonesia. Thus, within MNCs of each type of corporate strategy subsidiaries that deviate from the basic strategy are likely (Birkinshaw & Morrison, 1995; Jarillo & Martinez, 1990). The MNC level is, hence, not sufficient to predict the subsidiary strategy (Hoffman, 1994). The IR framework, however, focuses exclusively on industry forces and neglects all other antecedents of the subsidiary strategy, in particular the country-specific context factors.

On the other hand, the corporate strategy is a major influence factor for the development of a subsidiary strategy. If the subsidiary strategy is understood to be a sub-strategy to the corporate strategy, it can be assumed that the majority of the foreign subsidiaries will follow the corporate strategy. Strategies on the level of business units are guided by strategies on the corporate level (Vancil, 1976; Hoffman, 1994). Furthermore, the MNC corporate strategy is eventually manifested as an aggregation of the individual subsidiaries’ strategies. It can, thus, be expected that, e.g., MNCs with a global strategy have relatively many subsidiaries that realize a global type of strategy in their host countries (Jarillo & Martinez, 1990; Harzing, 2000; Macharzina, 1993). Eventually, the association between the corporate level and the subsidiary level is also a contingency relationship with regard to the internal consistency of the strategies

(Morrison & Roth, 1993; Miller, 1981). Overall, while we emphasize that there is no deterministic link between the corporate strategy and the subsidiary strategy, we still hypothesize the following relationships:

H5. Subsidiaries of MNCs with an international corporate strategy most likely follow an “international” subsidiary strategy in the host country (i.e. have a low level of local adaptation and a low level of integration into the MNC).

H6. Subsidiaries of MNCs with a multinational corporate strategy most likely follow a “multinational” subsidiary strategy in the host country (i.e. have a high level of local adaptation and a low level of integration into the MNC).

H7. Subsidiaries of MNCs with a global corporate strategy most likely follow a “global” subsidiary strategy in the host country (i.e. have a low level of local adaptation and a high level of integration into the MNC).

H8. Subsidiaries of MNCs with a transnational corporate strategy most likely follow a “transnational” subsidiary strategy in the host country (i.e. have a high level of local adaptation and a high level of integration into the MNC).

SAMPLE

Data were collected through a mail and e-mail questionnaire survey of the heads of international operations or of directors of organization of German MNCs. Each respondent was asked to fill in the questionnaire with respect to one specific foreign subsidiary in a specific foreign market. Contact addresses were generated from two different industry databases. Overall, 5,400 questionnaires were successfully sent to different MNCs of which 408 responded. 59 questionnaires had to be eliminated for the analysis of the research questions in this paper due to missing values. Thus, the following analysis is based on 349 questionnaires.

The response rate of 7.6% is low, but not unusual for international studies with high-level executives as respondents (Harzing, 1997). To evaluate the risk of a non-response bias, we used two methods. First, following

the procedure proposed by Armstrong & Overton (1977), we compared the group of early respondents (first quarter of the sample to answer) with the group of late respondents (last quarter of the sample to answer) on seven different variables by ANOVA. The F-Values did not display any significant differences. Second, we compared responding and non-responding firms from the original sample. Since a quantifiable information in the original database was the location of each company, we compared the location of responding and non-responding firms on the level of the first digit of the post codes (from 0 to 9, i.e. ten areas). A Chi²-test did not display any significant differences. Both procedures, thus, show no indication of a non-response bias.

The companies are from a diverse field of services, like advertising agencies, consulting companies, software companies, etc., and different manufacturing industries, mainly machine manufacturing and electrical equipment and appliances manufacturing. The location of the 349 subsidiaries was spread over 38 countries on all continents. The most important host countries were USA (12.7% of subsidiaries in the sample), China (11.2%), Western European countries (mainly France, UK, and Switzerland), and Eastern European countries (mainly Poland, Romania, Czech Republic). The MNCs in the sample had sales between 0.3 million EUR and 6.4 bn. EUR (mean: 215 million EUR); the subsidiary size varied from 0.02 to 445 million EUR sales (mean: 24.8 million EUR).

MEASUREMENT OF VARIABLES

To measure the variables, we used standard well-established research instruments. A detailed explanation of the measurement scales is displayed in Tables A and B in the appendix.

To capture the *forces for global integration*, we measured two items, asking for the relevance of economies of scale in the industry and for the presence of global competitors (Birkinshaw & Morrison, 1995; White & Poynter, 1990). To capture the *forces for local responsiveness*, we asked whether the competitors offer worldwide standardized products and services and whether the customer demand is homogeneous worldwide (Roth, Schweiger, & Morrison, 1991; Birkinshaw & Morrison, 1995)

To identify the *strategic orientation of the MNC*, we followed the approach by Leong & Tan (1993). Four statements were used that describe each of the four strategies based on the characteristics given in the literature.

Respondents were asked to decide which one describes their MNC strategy best. For validation, three control questions were asked, adapted from Harzing (2000) and Leong and Tan (1993).

On the level of the subsidiary, the IR dimensions are seen to be the adaptation of the subsidiary to the local country context and the interdependence between the subsidiary and the rest of the MNC (Harzing & Sorge, 2002; Ghoshal & Nohria, 1993; Morrison & Roth, 1993). In literature, global integration is most frequently captured with regard to purchases and sales because this measure relates best to the postulated advantages of integration, namely the cost reduction by economies of scales (Kobrin, 1991; Ghoshal & Nohria, 1993; Porter, 1986; Morrison & Roth, 1993). Thus, to measure the *integration of the subsidiary* into the MNC we asked for the percentage of purchases and sales of the subsidiary that go to or come from the rest of the MNC instead of from external suppliers or to external customers (Andersson & Forsgren, 1994; Nohria & Ghoshal, 1997; Harzing, 2000). We measured the *local adaptation* of the subsidiary to the host countries with four items, asking, e.g., to which extent products and services are customized to the specific country (Harzing, 2000; Gates & Egelhoff, 1986). Local adaptation is a reflective measure. Cronbach's alpha was .787, well above the demanded thresholds. The four items were aggregated with a principal component analysis.

The measurement of the *coordination variables* was adopted from previous studies (mainly Martinez & Jarillo, 1991; Nohria & Ghoshal, 1997; Harzing & Noorderhaven, 2006). The reliability of multi-item scales was assessed using Cronbach's α . When reliability was indicated, items were aggregated with a principle component analysis for each construct. Following several studies (Roth & Morrison, 1992a; Nohria & Ghoshal, 1997; Birkinshaw & Morrison, 1995), we captured centralization by asking respondents to indicate at which level in the organization eight types of decisions were made. We did not divide the item battery a priori in "strategic" and "operational" but carried out a principal component analysis which clearly resulted in the two factors "centralization of strategic decisions" (4 items, $\alpha = 0.799$) and "centralization of operative decisions" (4 items, $\alpha = 0.834$). In addition, we measured formalization/standardization, planning, and normative integration.

To capture *performance*, we measured the satisfaction of HQ managers concerning three performance measures of their subsidiary (Brouthers, Brouthers, & Werner, 2000): sales, ROI and the overall performance of the subsidiary ($\alpha = 0.844$).

RESULTS AND DISCUSSION

Identification of the I/R Categorization

As the first part of the analysis, the three conceptual levels of our model are investigated separately. Taxonomies are identified on the three levels in order to test four types of environments, of corporate strategies, and of subsidiary strategies. For the industry level and the subsidiary level, cluster solutions are identified that group subsidiaries with a similar external industry environment respectively a similar IR strategy together. For the level of the MNC, an established scale from literature is used to assign MNCs to one of the four strategic orientations.

Level of the external forces. The analysis of the IR forces is the basis of the analysis and has, thus, been undertaken very thoroughly. The two dimensions of the model - forces for global integration and forces for local responsiveness - were used to create clusters of the external situations of the investigated MNCs. Unfortunately, cluster analysis does not provide a definitive test of a particular cluster solutions and no purely objective procedure exists for determining the appropriate number of clusters (Morrison & Roth, 1993). Therefore, we compared several solutions.

In the first step, we specified the number of clusters by looking at error square sums of a hierarchical cluster analysis based on a ward-algorithm with Euclidian distances. Following the elbow criterion, a three cluster solution appeared to best fit the data. However, since the IR framework mostly refers to a four-cell matrix, the 3-cluster solution and the 4-cluster solution were extensively compared. We used three different cluster methods, the two-step cluster analysis method, the hierarchical cluster analysis (with ward-algorithm) and the non-hierarchical k-means to derive a 3-cluster and a 4-cluster solution with each of the methods. To compare the six solutions, we conducted ANOVAs for the cluster means on forces for local

responsiveness and forces for global integration; we conducted pairwise comparisons between the means as well as a discriminant analysis in which the cluster was used as dependent variable and the two forces as independent variables. The percentage of correct classifications from the cluster analysis was used as a further measure. Within each of the procedures, the advantages of the 3-cluster solutions were revealed with better separation between the clusters. Also by using the two-step method, a 3-cluster solution was proposed as optimal solution.

display Table 1 about here

In the next step, the iterative k-means procedure (preset at three clusters) and the two-step procedure were applied to create the clusters. Comparing the results of both methods revealed almost completely identical cluster solutions. Only five of 349 cases were not assigned to the same cluster by both methods which can be seen as a further validation of the 3-cluster solution. Following a very conservative approach, we only consider the 344 cases in the remainder of the analysis that produced homogenous results by both methods. The resulting three clusters, multinational, global and transnational industries, correspond to the findings of other empirical studies (e.g. Harzing, 2000; Roth & Morrison, 1990) and conceptualizations (e.g. Bartlett, 1986). To describe the patterns in more detail, the mean value of each dimension as well as of the underlying items as well as the ANOVAs and the pairwise comparisons are reported in Table 1.

The table shows that the two dimensions clearly distinguish the environmental force types “multinational industry” and “global industry”. The transnational industry is less clear, since it does not display extreme values. As the proposed framework suggests, the forces for local responsiveness are substantially higher in transnational industries than in global industries. However, they are lower than in the multinational industries with which they should be on the same level according to the framework. Also, the forces for global integration are slightly lower in transnational industries than in global industries with which they should be on the same level. The same finding is also revealed in a discriminant analysis where

wrong classifications are highest for the transnational solution while the global and the multinational are clearly separated.³

Level of the MNC: Corporate strategy. To capture the MNC's international strategy with regard to integration and responsiveness, we followed the approach by Leong & Tan (1993), as described in the measurement chapter. 36.1 % of the companies were self-categorizing as international organizations, 33.0% as multinational organizations, 15.8% as global organizations and 15.1% as transnational organizations.

While the low share of global organizations and the high share of multinational organizations does not reflect the public discussion on the globalization of companies, it confirms the perspective of Rugman (e.g. Rugman, 2000; Rugman & Verbeke, 2004) who argues a trend toward regionalization.

display Table 2 about here

To validate the self-categorization of the companies, three control questions were asked, based on Harzing (2000) and Leong & Tan (1993). Each control question focuses on a specific MNC orientation. Table 2 displays the results. With regard to the first question, MNCs that categorized themselves as global display the highest degree of concentration of resources in the home country. Considering the second question, those MNCs that classified themselves as transnational agree significantly stronger that their subsidiaries often act as strategic centers of excellence for products and processes. Considering the third question, multinational MNCs characterize themselves strongest as loosely coupled and decentralized federations. For all three control variables, significant differences in the expected direction emerge between the four types. The pairwise comparisons also reflect the postulated attributes of the four types. Thus, the self-classification appears to have produced valid results with regard to the strategic orientation of the MNCs.

Level of the foreign subsidiary: IR strategy in the host country. On the subsidiary level, the two dimensions "local adaptation" and "integration into the MNC" were used to create clusters of the specific subsidiary role in its host country. A k-means clustering, preset at four clusters to reproduce the proposed matrix creates one cluster in which only a single subsidiary is located. This demonstrates that a 3-cluster

solution - which is also implied by the elbow-criterion (based on a ward-algorithm with Euclidian distance) – is superior. Furthermore, by using the two-step procedure, a 3-cluster solution is proposed to be optimal. We carried out two cluster analyses, one with k-means, one with the two-step procedure. Both produce very consistent results. For the further analysis, we use the cluster solution of the two-step cluster procedure.

display Table 3 about here

The results in Table 3 clearly show that the 3-cluster solution with a “multinational”, an “international” and a “transnational” strategy of the subsidiary represents the data well. First, it becomes evident that the “multinational” subsidiary strategy where the focus is more on local adaptation than on integration into the MNC, is dominant. Second, on the level of the subsidiary, a “transnational” role is rather seldom (only 11.5% of the cases). Third, different from the theoretical conceptualization, a “global” subsidiary strategy does not appear in the data. In addition to the cluster analysis, we investigated a graphic representation of the subsidiaries in an IR scatterplot and no “global” cases were displayed.

The very high share of “multinational” subsidiaries and the non-existence of a purely “global” subsidiary strategy is congruent with a similar result from a previous study. In the empirical study by Andersson & Forsgren (1994) on the subsidiary level, the type “local innovator” (which is similar to the “multinational” subsidiary strategy) was the dominant role of subsidiaries while they found only a very low number of so called “implementers” (which would be the equivalent to a “global” subsidiary strategy). Similarly, Jarillo & Martinez (1990) concluded from their study that there were not purely “receptive” subsidiaries (the term that they used to characterize the high integration/low responsiveness type) in their sample.

It may be that a strictly global strategy of the subsidiary, without any local adaptation to the host country is not accepted anymore by local customers and a minimum level of local responsiveness is necessary on the specific country level.

Relationships between the three Levels

To investigate the relationships between the three levels, we mainly applied contingency analysis to the identified clusters based on cross-tabulations. With this method, we analyzed whether certain types from one level are associated with certain types from other levels.

External environment and corporate strategy of the MNC. To investigate the contingency assumption from literature between the external forces for global integration and local responsiveness and the corporate strategy of the MNC, we analyze the cross-tabulation of the clusters of external industry forces (which a MNC is exposed to) and the corporate strategy of this MNC (Table 4). The fact that only three clusters were identified on the industry level already shows that a one-to-one relationship between both levels does not hold.

display Table 4 about here

A χ^2 -value of 39.295 ($p=0,000$) confirms that both variables (the nominal variable “external environment” and the nominal variable “corporate strategy”) are highly significant associated with each other. Indeed, the corresponding fields (e.g. “multinational” environment/multinational orientation) have all a significantly higher number of cases than would be expected at random. Other values in the cells also support these relationships, e.g. the finding that in industries with a multinational environment global strategies are significantly less frequently utilized than in the total sample and that – vice versa – in global environments multinational strategies are (slightly) less frequently used than in the total sample – even though the latter coefficient is not significant. The international strategy - to which no corresponding industry environment has been found - is relatively equally found in the different external environments.

Thus, industry forces play a strong role for the choice of corporate strategies but MNCs still have room for strategic choice. This is particularly true in “transnational” environments because here high forces for local responsiveness make a multinational strategy not completely inadequate and high forces for global integration render a global strategy not completely inadequate. In the antipodal fields (multinational-

global), however, crosswise misfitting corporate strategies are seldom. This means that in global industry environments, multinational strategies are rare; in multinational industry environments, global strategies are also not often found.

Based on these results, a contingency relationship between the level of the external environment and the level of the MNC is revealed. The data provides support for *hypotheses H2, H3, and H4*. The investigation is, though, incomplete since the influence of an “international environment” could not be tested since this environment forces cluster (weak forces for local adaptation and weak forces for global integration) did not appear in our data. Thus, the antecedent condition of *hypothesis H1* did not exist in the sample, making this hypothesis test impossible.

Corporate strategy and subsidiary strategy. On the next level, we apply the same method to investigate the relationship between the corporate strategy of the MNC and the subsidiary strategy. Table 5 displays the contingency analysis. The overall association between both levels is indicated by the highly significant χ^2 -value of 31.229 ($p=0.000$).

Looking at the specific relationships, the following results can be observed: Foreign subsidiaries of MNCs with an international orientation follow an “international” subsidiary strategy (with low local adaptation and low integration into the MNC) more often than this subsidiary strategy is applied in the total sample. However, this difference is not significant, so that *hypothesis H5* is rejected. If MNCs have a multinational strategy, their subsidiaries follow a “multinational” role in most cases, i.e. they are rather weakly integrated into the flows of products and services with the rest of the MNC and are highly adapted to the local conditions in the host country. The observed frequency in this cell is significantly higher than in the total sample, which is in accordance with *hypothesis H6*. Even in MNCs with a global orientation, though, a “multinational” subsidiary strategy is implemented often. Since a purely “global” subsidiary is not observed at all in the sample, *hypothesis H7 has to be rejected*. While the antecedent condition of this hypothesis is fulfilled in a number of cases in the sample but the posited consequence does not appear, the hypothesis clearly does not find support in the data. MNCs with a transnational corporate strategy have

significantly more often than random subsidiaries with a “transnational” strategy, i.e. subsidiaries that simultaneously apply a high level of local adaptation and a strong integration into the MNC. *Hypothesis H8* is, thus, supported by the data.

display Table 5 about here

In addition to the descriptive analysis, we also investigated whether the interaction between the MNC’s corporate strategy and its subsidiary’s strategy has an influence on the economic performance of the subsidiary. With a two-factor ANOVA it was tested whether aligned combinations (e.g. a multinational subsidiary strategy in a multinational MNC organization) lead to higher performance. No interaction effect was identified. Given the internal nature of both sets of strategy variables, this seems plausible. Indeed, if a MNC allows a subsidiary a deviation from the overall MNC strategy, then it can be expected that this is a conscious decision which is taken to enhance the performance of the subsidiary. Thus, the coalignment is the most frequent situation but it is not in all cases the most successful combination.

Influence on the IR categorization on the three levels on the use of coordination instruments

A taxonomy is useful if it helps to explain variables beyond those that were used to create the taxonomy. In the following section of the text, we investigate whether the IR framework is valuable in this respect on all three different levels. Moreover, we want to analyze whether the application of the IR framework on the MNC level is adequate for the analysis of headquarter-subsidiary relationships as it is often done in literature and demonstrate that, given the heterogeneity between subsidiaries, a deeper level of analysis is more appropriate.

For this analysis, a number of coordination instruments that are usually used in literature (e.g. Nohria & Ghoshal, 1994; Harzing & Noorderhaven, 2006) have been captured (centralization,

formalization/standardization, planning, and normative integration) and their utilization in the different types of environments, MNC strategies and subsidiary strategies is compared.

Influence of the external environment. On the level of the external environment, the taxonomy serves quite well to explain the different use of centralization (with regard to operative decisions), formalization/standardization and planning (Table 6). For those three variables, significant differences between the different industry environments appear. In all, the differences are also plausible from the conceptual framework, since, e.g., the level of centralization is lowest in multinational industries and highest in global industries. A further interpretation of these results is omitted to take a more detailed look at the other levels.

Influence of the MNC's corporate strategy. The strategic orientation of the MNC seems to have a stronger influence on the use of the coordination instruments towards the MNC's subsidiaries. Table 7 displays the comparison of means for the intensity of the use of the different instruments.

MNCs with a global strategy exert the highest level of centralization of operative decisions. Formalization/standardization is also highest as is the use of planning as coordination instrument. For strategic decisions, MNCs with an international corporate strategy are even stronger centralized. With regard to normative integration, the corporate strategy of the MNC does not seem to play a significant role in this sample. While MNCs with a transnational strategy do use this instrument with the highest intensity (as many authors posit), the difference is not significant.

MNC with a multinational strategy display the lowest level of centralization for strategic decisions which is in accordance to the conceptual description of this MNC type. It is noteworthy that transnational MNCs have a lower degree of centralization for operative decisions which obviously are delegated even more to the foreign subsidiaries. On the other hand, transnational MNCS still exert a rather tight coordination but via other coordination instruments, such as formalization/standardization.

In all, the use of the coordination instruments overall reflects the theoretical considerations for the four MNC types.

display Table 6 about here

display Table 7 about here

display Table 8 about here

Influence of the subsidiary strategy. A very strong influence on the use of the coordination instruments can be observed from the IR strategy of the subsidiary. As displayed in Table 8, there are significant differences between the three IR subsidiary strategy types for almost every coordination instrument. Overall, the mean differences are according to the conceptual descriptions of the strategy types, e.g., multinational and transnational subsidiary strategies are associated with rather low degrees of centralization; transnational subsidiary strategies lead to a stronger use of normative integration and a transnational strategy requires a rather intensive use of the coordination instruments.

Explanation power of the different levels of the extended IR framework. From all three levels (which are, though, not independent), significant influences on the coordination of the subsidiary can be observed. However, it becomes evident – regarding the number of coordination instruments with significant differences as well as the significance levels – that the subsidiary strategy has the best predictive power concerning the intensity of the use of coordination instruments towards itself.

These results support one of the basic assumptions of this paper, namely that the heterogeneity of the different subsidiaries of a MNC can be high and that this exerts a strong influence on the headquarters-subsidiary relationship. The traditional question of coordination of subsidiaries can, thus, be better answered if determinants on the level of the subsidiary are taken into account.

CONCLUSION

In this paper we have made the attempt to build on one of the most popular frameworks for the analysis of MNC strategies and to provide an extension to account for the strategic choice of MNCs and for the substantial heterogeneity among subsidiaries that is emphasized in modern MNC models.

Utilizing the IR framework, previous studies have often not clearly distinguished between the external forces (i.e. the industry level), the corporate strategy of the MNC and the specific subsidiary strategy in a particular country. As a first contribution of our study, it has been shown that the IR framework can be used on these three levels but that a four-type categorization does not seem to reflect the empirical data at every level. On the level of the industry and on the level of the subsidiary, 3-cluster solutions appeared. Unfortunately, on the level of the industry, an “international” situation does not seem to exist and at the level of the subsidiary, a “global” subsidiary strategy did not emerge in the data, rendering the further analysis more difficult. In both cases, though, the findings from our sample are congruent with previous studies and conceptualizations.

As a second contribution of our study, it has to be noted that the relationship between the three levels is less tight than often implicitly expected. Devinney, Midgley, & Venaik (2000) criticized a lack of clarity regarding the deterministic nature of the IR framework. In our study it has been shown empirically that a specific industry environment does not deterministically lead to a specific corporate strategy of all MNCs in that industry and that within a MNC, subsidiaries with very heterogeneous IR strategies can be found. At the same time, this finding seems plausible. That the corporate strategy of a MNC is only loosely associated with the external environment, can be explained by the strategic choice of companies (Child, 1972). Linking the IR framework to the related framework of Perlmutter, it is noteworthy that the EPG concept (Perlmutter, 1969) does not even link the different types of managerial attitudes (ethnocentric, polycentric, geocentric) to external contingencies.

On the next level, the basic strategic orientation of a MNC does only loosely guide the strategy of a specific MNC subsidiary. Jarillo & Martinez (1990) already assumed that in their article but they did not systematically investigate it. In our sample this assumption received empirical support. Furthermore, it is noteworthy that a non-alignment between corporate strategy and subsidiary strategy does not lower the performance of the subsidiary. This can be explained by the conscious choice of both strategies which is likely to allow a deviation only in cases where it is expected to enhance the performance.

Overall, though, a significant relationship between the three levels was demonstrated. For instance, a multinational subsidiary strategy is in most cases rooted in a multinational orientation of the MNC which is in most cases the response to external forces towards a multinational strategy. In future research, one has to clearly distinguish, though, between these three levels.

In our sample, we only had one foreign subsidiary of each MNC. A more thorough investigation of the framework that was developed in the paper should include data collection from a number of subsidiaries from the same MNC and a larger number of MNCs from a sufficient number of different industries to conduct a multi-level study (Arregle, Hébert, & Beamish, 2006). This would be necessary to show whether different subsidiaries of the same MNC really employ different strategies and it would allow a deeper insight into the reasons for this heterogeneity.

¹ The illustration in Figure 1 which only uses the terms “international”, “multinational”, “global” and “transnational” on the MNC level shall highlight that these terms are actually only correct on this level. There is really nothing like “transnational” or “international” forces and, even more obvious, there cannot be a “multinational” strategy of a single subsidiary.

However, for the sake of simplicity, to make reading easier and to avoid introducing new terms on the different levels (as Jarillo & Martinez, 1990, did on the subsidiary level), we use the usual labels for the four types on all three levels. A “multinational” subsidiary strategy, thus, characterizes a subsidiary that adapts strongly to its local market while its integration into the MNC is low. On the industry level and on the subsidiary level, though, we will use the terms in quotation marks.

² It is noteworthy that these two illustrations (Yip, 1991, and De la Torre, Esperanca, & Martínez, 2003) eventually demonstrate the latent inconsistency in the explanations of the model. On the one side, it is argued that the two dimensions are independent. On the other side, one dimension (forces for globalisation) is often picked and it is implied that it can represent both requirements at the same time.

³ Again, this result questions the independence of the both dimensions of the IR framework as have previous studies.

REFERENCES

- Andersson, U., & Forsgren, M. 1994. *Degree of integration in some Swedish MNCs, Working Paper Nr. 4, Department of Business Studies, Uppsala University*. Uppsala, Sweden.
- Andersson, U. and Forsgren, M. (1995) Using networks to determine multinational parental control of subsidiaries. In S. Paliwoda & J. K. Ryans (Eds.), *International Marketing Reader*, London-New York: 72-87.
- Armstrong, J. S., & Overton, T. S. 1977. Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14: 396-402.
- Arregle, J.-L., Hébert, L., & Beamish, P. W. 2006. Mode of International Entry: The Advantages of Multilevel Methods. *Management International Review*, 46(5): 597-618.
- Bartlett, C. A. 1986. Building and managing the transnational: The new organizational challenge. In M. E. Porter (Ed.), *Competition in Global Industries*, Boston, MA: Harvard Business School Press, 367-404.
- Bartlett, C. A., & Ghoshal, S. 1989. *Managing across borders: The transnational solution*. Boston, MA: Harvard Business School Press.
- Bartlett, C. A., & Ghoshal, S. 1986. Tap your subsidiaries for global reach. *Harvard Business Review*, 64(4): 87-94.
- Bartlett, C. A., & Ghoshal, S. 1987. Managing across borders: New organizational responses. *Sloan Management Review*, 29(1): 43-53.
- Bartlett, C. A., Ghoshal, S., & Beamish, P. W. 2008. *Transnational Management - text, cases, and readings in cross-border management*. Boston u.a.: Irwin, McGraw-Hill.
- Birkinshaw, J. M., & Morrison, A. J. 1995. Configurations of strategy and structure in subsidiaries of multinational corporations. *Journal of International Business Studies*, 26(4): 729-753.
- Brouthers, L. E., Brouthers, K., & Werner, S. 2000. Perceived environmental uncertainty, entry mode choice and satisfaction with EC-MNC performance. *British Journal of Management*, 11(3): 183-195.
- Buckley, P. J. 1996. The role of management in international business theory: A meta-analysis and integration of the literature on international business and international management. *Management International Review*, 35(1 Special Issue): 7-54.
- Chandler, A. D. 1962. *Strategy and structure: Chapters in the history of the American industrial enterprise*. MIT Press.
- Child, J. 1972. Organizational structure, environment and performance: The role of strategic choice. *Sociology*, 6: 1-22.
- De la Torre, J., Esperanca, J. P., & Martínez, J. 2003. The evolving multinational: Strategy and structure in Latin American operations, 1990-2000. In J. M. Birkinshaw, S. Ghoshal, C. Markides, J. Stopford, & G. Yip (Eds.), *The Future of the Multinational Company*, Chichester: Wiley, 61-75.

- Devinney, T., Midgley, D., & Venaik, S. 2000. The optimal performance of the global firm: Formalizing and extending the integration-responsiveness framework. *Organization Science*, 11(6): 674-695.
- Doz, Y. L. 1980. Strategic management in multinational companies. *Sloan Management Review*, 21(1): 27-46.
- Doz, Y. L., Bartlett, C. A., & Prahalad, C. K. 1981. Global competitive pressures vs. host country demands: Managing tensions in multinational corporations. *California Management Review*, 23(3): 63-74.
- Doz, Y. L., & Prahalad, C. K. 1981. Headquarters' influence and strategic control in MNCs. *Sloan Management Review*, 23(1): 15-29.
- Fayerweather, J. 1969. *International Business Management: A Conceptual Framework*. New York, NY:
- Gates, S., & Egelhoff, W. G. 1986. Centralization in headquarters-subsidary relationships. *Journal of International Business Studies*, 17(2): 71-92.
- Ghoshal, S., & Nohria, N. 1989. Internal differentiation within multinational corporations. *Strategic Management Journal*, 10(4): 323-337.
- Ghoshal, S., & Nohria, N. 1993. Horses for courses: Organizational forms for multinational corporations. *Sloan Management Review*, 34(2): 23-35.
- Gupta, A. K., & Govindarajan, V. 2000. Knowledge flows within multinational corporations. *Strategic Management Journal*, 21(4): 473-496.
- Harzing, A.-W. 1997. Response rates in international mail surveys: Results of a 22 country study. *International Business Review*, 6(6): 651-665.
- Harzing, A.-W. 2000. An empirical analysis and extension of the Bartlett and Goshal typology of multinational companies. *Journal of International Business Studies*, 31(1): 101-120.
- Harzing, A.-W., & Noorderhaven, N. 2006. Knowledge flows in MNCs: An empirical test and extension of Gupta / Govindarajan's typology of subsidiary roles. *International Business Review*, 15: 195-214.
- Harzing, A.-W., & Sorge, A. 2002. The relative impact of country of origin and universal contingencies on internationalization strategies and corporate control in multinational enterprises: Worldwide and European perspectives. *Organization Studies*, 24(2): 187-214.
- Hedlund, G., & Ridderstråle, J. (1997) Toward a theory of the selfrenewing MNC. In B. Toyne & D. Nigh (Eds.), *International Business: An Emerging Vision*, Columbia: University of South Carolina Press.
- Hoffman, R. C. 1994. Generic strategies for subsidiaries of multinational corporations. *Journal of Managerial Issues*, 6(1): 69-87.
- Jarillo, J. C., & Martinez, J. I. 1990. Different roles for subsidiaries: The case of multinational corporations. *Strategic Management Journal*, 11(7): 501-512.
- Johnson, J. 1995. An empirical analysis of the integration-responsiveness framework: U.S. construction equipment industry firms in global competition. *Journal of International Business Studies*, 26(3): 621-635.

- Kobrin, S. J. 1991. An empirical analysis of the determinants of global integration. *Strategic Management Journal*, 12(Special Issue Summer): 17-31.
- Kujala, J., & Sajasalo, P. 2009. Reforming the integration-responsiveness framework: a business ethics perspective. *Journal of International Business Ethics*, 2(1): 59-72.
- Lawrence, P. R., & Lorsch, J. W. 1967. Differentiation and integration in complex organizations. *Administrative Science Quarterly*, 12: 1-47.
- Leong, S. M., & Tan, C. T. 1993. Managing across borders: an empirical test of the Bartlett and Ghoshal (1989) organizational typology. *Journal of International Business Studies*, 24(3): 449-464.
- Macharzina, K. (1993) Steuerung von Auslandsgesellschaften bei Internationalisierungsstrategien. In M. u. a. Haller (Ed.), *Globalisierung der Wirtschaft - Einwirkungen auf die Betriebswirtschaftslehre*, Bern u.a.: Haupt, 77-109.
- Martinez, J. I., & Jarillo, J. C. 1991. Coordination demands of international strategies. *Journal of International Business Studies*, 22(3): 429-444.
- Melin, L. 1992. Internationalization as a strategy process. *Strategic Management Journal*, 13(Special Issue Winter): 99-118.
- Miller, D. 1981. Toward a new contingency approach - the search for organizational gestalten. *Journal of Management Studies*, 18(1): 1-26.
- Morrison, A. J., & Roth, K. 1993. Relating Porter's configuration/coordination framework to competitive strategy and structural mechanisms: Analysis and implications. *Journal of Management*, 19(4): 797-818.
- Nohria, N., & Ghoshal, S. 1994. Differentiated fit and shared values: alternatives for managing headquarters-subsidiary relations. *Strategic Management Journal*, 15(6): 491-503.
- Nohria, N., & Ghoshal, S. 1997. *The differentiated network: Organizing multinational corporations for value creation*. San Francisco/CA: Jossey-Bass.
- Perlmutter, H. 1969. The tortuous evolution of the multinational corporation. *Columbia Journal of World Business*, 4(1): 9-18.
- Pla-Barber, J. 2002. From Stopford and Wells's model to Bartlett and Ghoshal's typology: New empirical evidence. *Management International Review*, 42(2): 141-156.
- Porter, M. E. (1986) Competition in global industries: A conceptual framework. In *Competition in global industries*, Boston, MA: Harvard Business School Press, 15-60.
- Prahalad, C. K., & Doz, Y. 1987. *The Multinational Mission: Balancing Local Demands and Global Vision*. New York: The Free Press.
- Randøy, T. and Li, J. (1998) Global resource flows and MNE network integration. In J. M. Birkinshaw & N. Hood (Eds.), *Multinational Corporate Evolution and Subsidiary Development*, London: MacMillan, 76-101.

- Roth, K., & Morrison, A. J. 1990. An empirical analysis of the integration-responsiveness framework in global industries. *Journal of International Business Studies*, 21(4): 541-564.
- Roth, K., & Morrison, A. J. 1992a. Business-level competitive strategy: A contingency link to internationalization. *Journal of Management*, 18(3): 473-487.
- Roth, K., & Morrison, A. J. 1992b. Implementing global strategy: Characteristics of global subsidiary mandates. *Journal of International Business Strategy*, 23(4): 715-735.
- Roth, K., Schweiger, D., & Morrison, A. 1991. Global strategy implementation at the business unit level: Operational capabilities and administrative mechanisms. *Journal of International Business Studies*, 22(3): 369-402.
- Rugman, A. 2000. *The End of Globalization*. London: Random House Business Books.
- Rugman, A., & Verbeke, A. 2004. A perspective on regional and global strategies of multinational enterprises. *Journal of International Business Studies*, 35(1): 3-18.
- Sundaram, A. K., & Black, J. S. 1992. The environment and internal organization of multinational enterprises. *Academy of Management Review*, 17(4): 729-757.
- Taggart, J. 1997. An evaluation of the integration-responsiveness framework: MNC manufacturing subsidiaries in the UK. *Management International Review*, 37(4): 295-318.
- Taggart, J. 1998. Strategy shifts in MNC subsidiaries. *Strategic Management Journal*, 19(7): 663-681.
- Vancil, R. F. 1976. Strategy formulation in complex organizations. *Sloan Management Review*, 17(Winter): 1-18.
- Venkatraman, N., & Prescott, J. F. 1990. Environment-strategy coalignment: An empirical test of its performance implications. *Strategic Management Journal*, 11: 1-23.
- Westney, D. E. and Zaheer, S. 2001. The multinational enterprise as an organization. In A. Rugman & T. L. Brewer (Eds.), *Oxford Handbook of International Business*, Oxford: 349-379.
- White, R. and Poynter, T. 1990. Organizing for a world-wide advantage. In Y. L. Doz, C. A. Bartlett, & G. Hedlund (Eds.), *Managing the Global Firm*, London: Routledge, 95-113.
- Yip, G. 1991. *Do American Businesses Use Global Strategy?*, Report No. 91-101, Marketing Science Institute. Cambridge, MA.

APPENDIX

Table A
Measurement of the three IR levels.

Construct	Items	Scale	Source	Remarks
Forces for Global Integration	“Scale effects are highly relevant in our industry to guarantee cost-efficient operations.” “In most country markets, we compete with the same international companies.”	Likert scale 1-7; anchors: strongly agree – strongly disagree	Adapted from Birkinshaw & Morrison, 1995; White & Poynter, 1990	unweighted average of the two items
Forces for Local Responsiveness	“Our competitors offer worldwide standardized products and services.” The customers’ demand in our industry is internationally very similar”	Likert scale 1-7; anchors: strongly agree – strongly disagree	Adapted from Roth, Schweiger, & Morrison, 1991; Birkinshaw & Morrison, 1995	unweighted average of the two items
Strategic Orientation of the MNC	“How does your company principally proceed in its international activities? (a) by building a strong local presence through sensitivity and responsiveness to national differences among countries; (b) by building cost advantages through global-scaled operations; (c) by exploiting the parent company’s knowledge and capabilities (that were developed in the home country) through worldwide implementation and adaptation; (d) by building interdependent resources with specialized subsidiary roles while maintaining flexible and joint operations among countries.	Choice of one of these statements	Leong & Tan, 1993	
Control questions	“The skills and resources of our company are dominantly located in the home country and globally scaled.” “In our company, foreign 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.”	Likert scale 1-7; anchors: strongly agree – strongly disagree	Harzing, 2000; Leong & Tan, 1993	
Local adaptation (of the subsid.)	“To what extent has the marketing of the subsidiary been actively adapted to the conditions in the host country?” “To what extent have the business processes in general be adapted to the conditions in the host country?” “To what extent has the offer of products and services been adapted to the host country?” “To what extent have the operations been adapted to the conditions in the host country?”	Likert scale 1-7; anchors: not at all – to a very large extent	Harzing, 2000; Gates & Egelhoff, 1986	α : 0.787; explained variance: 61.4%; aggregation by factor analysis that resulted in one factor
Integration of subsidiary (inter-dependence)	“Purchases of the subsidiary (incl. parts/semi-manufactured articles) from the headquarters relative to total purchases of the subsidiary” “Purchases of the subsidiary (incl. parts/components) from other subsidiaries of the MNC relative to total purchases of the subsidiary” “Share of output of the subsidiary (incl. parts/components) that is sold to the headquarters relative to total output of the subsidiary” “Share of output of the subsidiary (incl. parts/components) that is sold to other subsidiaries of the MNC relative to total output of the subsidiary”	Six point scale, 0%, 1-24%, 25-49%, 50-74%, 75- 99%, 100%	adapted from Andersson & Forsgren, 1994; Harzing, 2000; Nohria & Ghoshal, 1997	unweighted average of the four items

Table B
Measurement of Coordination Instruments and Performance.

Construct	Items	Source	Remarks
Centralization	8	Roth & Morrison, 1992b; Nohria & Ghoshal, 1997	Expl. Variance: 66.0 %, two factors Centralization Strategy: : $\alpha=0.799$, 4 items; Centralization Operational Decisions: $\alpha=0.834$, 4 items
Formalization	2	Adapted from Nohria & Ghoshal, 1997; Harzing & Noorderhaven, 2006	High intercorrelation of all 4 items, hence, combined in one variable. $\alpha: 0.809$; expl. variance: 64.4%
Standardization	2		
Planning	2	Adapted from Martinez & Jarillo, 1991; Harzing & Noorderhaven, 2006	$\alpha: 0.731$; expl. variance: 78.8%
Normative Integration	2	Adapted from Martinez & Jarillo, 1991; Nohria & Ghoshal, 1997; Harzing & Noorderhaven, 2006	$\alpha: 0.829$; expl. variance: 85.4%
Subsidiary Performance	3	Adapted from Brouthers, Brouthers, & Werner, 2000; Nohria & Ghoshal, 1997	$\alpha: 0.844$; expl. variance: 76.5%

Figure 1

Framework of the study: A three-level IR model.

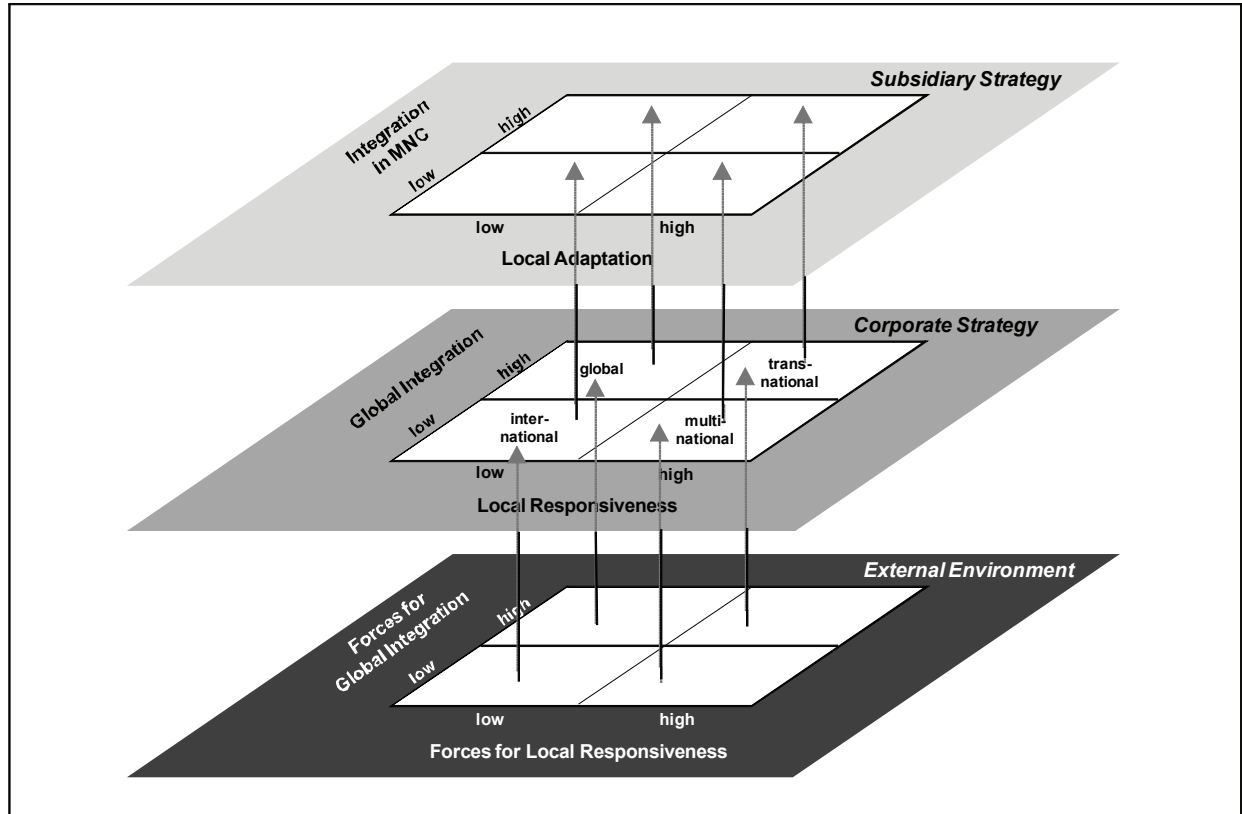


Table 1

3-cluster solution for the external industry forces in the IR framework.

	Means			ANOVA		Pairwise comparisons different at p=0.05; Tamhane-T2 test
	I	II	III	F	Sign.	
	“multinational” industry (n=117)	“global” industry (n=111)	“transnational” industry (n=116)			
Forces for global integration (I)	3.17	5.64	5.29	335.433	0.000	I and II, I and III, II and III
Forces for local responsiveness (R)	4.20	1.80	3.89	277.083	0.000	I and II, I and III, II and III

Remark: Both dimensions are measured on a 7-point scale.

Table 2

Corporate strategy of the MNCs – Validation of the self-categorization.

	Means				ANOVA		Pairwise comparison; different at p=0.05
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>F</i>	<i>Sign.</i>	
	<i>intern.</i> (<i>n</i> =116)	<i>multin.</i> (<i>n</i> =100)	<i>global</i> (<i>n</i> =49)	<i>transn.</i> (<i>n</i> =52)			
The skills and resources of our company are dominantly located in the home country and globally scaled.	5.44	4.48	5.71	4.90	9.175	0.000	Tamhane-T2 test: I and II, II and III, III and IV
“In our company, foreign subsidiaries regularly act as a strategic centre for a particular product or process, in other words subsidiaries regularly perform a role as ‘centre of excellence’.”	2.91	2.86	2.82	3.75	3.052	0.029	Scheffé test: I and IV, II and IV, III and IV
Our company can be adequately described as a very loosely coupled and decentralized federation of rather independent national subunits.	2.94	3.57	2.34	2.75	4.836	0.003	Tamhane-T2 test: II amd III, II and IV

Remark: All items are measured on a 7-point scale.

Table 3

3-cluster solution for the subsidiary strategy in the IR framework.

	Means			ANOVA		pairwise comparison; different at p=0.05; Scheffé test
	I	II	III	F	Sign.	
Local adaptation	0.450	-1.344	0.650	153.234	0.000	I and II, II and III
Integration (interdependency)	1.881	1.99	3.55	124.271	0.000	I and III, II and III

Remark: Local adaptation is measured as a factor value; integration is measured on a 6-point scale.

Table 4

Cross-tabulation and contingency analysis of industry forces and corporate strategy of the MNC.

	Cluster of external industry forces			Sum
	I “multinational” industry (n=104)	II “global” industry (n=81)	III “transnational” industry (n=94)	
% of row				
international orientation (n=96)	34.4%	35.4%	30.2%	100.0%
multinational orientation (n=91)	53.8%	25.3%	20.9%	100.0%
global orientation (n=46)	17.4%	43.5%	39.1%	100.0%
transnational orientation (n=46)	30.4%	8.7%	60.9%	100.0%
Sum	37.3%	29.0%	33.7%	100.0%
	100.0%	100.0%	100.0%	100.0%
	$\chi^2=39.295$; df=6; p=0.000			

*: significant difference between the observed and the expected frequency on the 5%-level

**: significant difference between the observed and the expected frequency on the 1%-level

***: significant difference between the observed and the expected frequency on the 0.1%-level

Table 5

Cross-tabulation and contingency analysis of the corporate strategy and the subsidiary strategy.

% of row % of column	Corporate strategy of the MNC				Sum
	I international MNC strategy (n=67)	II multinational MNC strategy (n=76)	III global MNC strategy (n=30)	III transnational MNC strategy (n=35)	
“multinational” subsidiary strategy (n=144)	32.6% 70.1%	41.7% 78.9% *	14.6% 70.0%	11.1% 45.7% *	100.0% 69.2%
“international” subsidiary strategy (n=40)	42.5% 25.4%	25.0% 13.2%	17.5% 23.3%	15.0% 17.1%	100.0% 19.2%
“transnational” subsidiary strategy (n=24)	12.5% 4.5% *	25.0% 7.9%	8.3% 6.7%	54.2% 37.1% ***	100.0% 11.5%
Sum	32.2% 100.0%	36.5% 100.0%	14.4 % 100.0%	16.8% 100.0%	100.0% 100.0%
$\chi^2=31.229$; df=6; p=0.000					

*: significant difference between the observed and the expected frequency on the 5%-level

**: significant difference between the observed and the expected frequency on the 1%-level

***: significant difference between the observed and the expected frequency on the 0.1%-level

Table 6

Use of coordination mechanisms (towards subsidiary) in different industry clusters.

	Mean values			ANOVA	
	“multinational” industry (n=104)	“transnational” industry (n=98)	“global” industry (n=94)	F	Sign.
Centralization of strategic decisions	-0.004	-0.021	0.186	0.962	0.384
Centralization of operative decisions	-0.266	0.095	0.131	3.701	0.026
Formalization/standardization	-0.269	0.096	0.173	5.023	0.007
Planning	-0.217	0.178	0.071	3.929	0.021
Normative integration	-0.137	0.083	0.001	1.225	0.295

Table 7

Use of coordination mechanisms (towards subsidiary) in MNCs with different corporate strategies.

	Mean values				ANOVA	
	internat. MNC strategy (n=106)	multinat. MNC strategy (n=99)	global MNC strategy (n=47)	transnat. MNC strategy (n=46)	F	Sign.
Centralization of strategic decis.	0.212	-0.305	0.068	-0.086	3.889	0.010
Centralization of operative decis.	0.104	-0.094	0.292	-0.348	3.191	0.024
Formalization/standardization	0.119	-0.317	0.334	0.222	6.187	0.000
Planning	-0.030	-0.142	0.282	0.235	2.679	0.047
Normative integration	0.100	-0.071	0.048	0.288	1.466	0.224

Table 8

Use of coordination mechanisms towards subsidiaries with different subsidiary strategies.

	Mean values			ANOVA	
	“multinational” subs. strategy (n=151)	“international” subs. strategy (n=40)	“transnational” subs. strategy (n=28)	F	Sign.
Centralization of strategic decisions	-0.025	0.157	-0.039	0.456	0.634
Centralization of operative decisions	-0.109	0.533	-0.507	9.343	0.000
Formalization/standardization	-0.056	-0.340	0.410	4.784	0.009
Planning	-0.008	-0.342	0.415	4.923	0.008
Normative integration	0.120	-0.170	0.339	3.201	0.044