

Knowledge Flows, Choice of Market Entry Strategies and Use of Coordination Mechanisms in Multinational Service Companies

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Dirk Morschett and Hanna Schramm-Klein

1. Introduction

Despite the high empirical relevance of the internationalization of services, relatively few empirical studies on this issue have been carried out. Even though in recent years, a number of studies were published that investigated the international management of service companies (e.g. Dunning, 1989; Vandermerwe & Chadwick, 1989; Erramilli & Rao, 1993; Aharoni, 1996; Knight, 1999; Brouthers & Brouthers, 2003; Elekedo & Sivakumar, 2004; Blomstermo, Sharma, & Sallis, 2006), compared to the extant literature on internationalization in the manufacturing industry, a research gap can still be identified (Knight, 1999; Coviello & Martin, 1999; Brouthers & Brouthers, 2003).

If the results of studies in the manufacturing sector were easily transferable to the service sector, specific studies would not be necessary. However, the question, whether findings from international management studies that have been based on the empirical studies of companies from the secondary sector can be generalized to the tertiary sector is still discussed intensively (e.g. Boddewyn, Halbrich, & Perry, 1986; Aharoni, 2000).

Some research streams in the internationalization literature have only rarely been investigated with respect to services. The existing literature on market entry strategies is almost exclusively focussed on manufacturing companies as the overviews by Kumar & Subramaniam (1997) and Sarkar & Cavusgil (1996) reveal. Only a few authors (e.g. Erramilli & Rao, 1993; Ekeledo & Sivakumar, 2004) have studied market entry of service companies. In these studies, research was mostly based on transaction cost theory and it neglected the emerging research stream of the strategy approach which postulates that market entry forms are primarily chosen to implement certain strategic objectives and not to maximize efficiency

(e.g. Kim & Hwang, 1992; Aulakh & Kotabe, 1997; Pla-Barber, 2001; Malhotra, Agarwal, & Ulgado, 2004).

Also, headquarters-subsidary relationships are rarely investigated in service research. In international business research in general, this has been a growing stream of literature since the mid 1980s (Birkinshaw, 2001). One of the most influential contributions to this research has been the article by Gupta & Govindarajan (1991) in which they emphasize the meaning of knowledge flows within the subsidiaries, develop a typology of subsidiary roles based on knowledge flows and postulate an influence on the use of coordination mechanisms (Harzing & Noorderhaven, 2006). Surprisingly, given the high level of attention that has been given to this typology, their model has not been subjected to much empirical verification. As far as we are aware, only Gupta & Govindarajan (1994), Randøy & Li (1998) and Harzing & Noorderhaven (2006) provided such a test. All three studies, however, were only using manufacturing companies in their samples, and a test of the generalizability of this model to services has not been provided yet.

Since there is increasing recognition that the management of knowledge flows is an important function of MNCs, it seems important to investigate Gupta & Govindarajan's model with regard to service companies and to analyze the impact of knowledge flows on headquarters-subsidary relationships. Following Gupta & Govindarajan (1991, 1994) we expect different subsidiary roles (with respect to knowledge flows) to imply systematic differences in the use of coordination mechanisms for that subsidiary. In extension to their model, however, we do not restrict this study to wholly-owned subsidiaries, but include subsidiaries in the form of cooperative arrangements. A systematic relation between the knowledge flow patterns and the applied market entry strategy for the subsidiary is also argued.

In the remainder of this paper we will discuss the conception of a service MNC as a network. We will then theoretically discuss the relation between knowledge flows and market entry strategies and the relation between knowledge flows and coordination mechanisms. Then an

empirical study which was used to test those relationships in a sample of service MNCs is presented.

2. The Service MNC as a Differentiated Network

More recent models of the structure of the MNC point out that it should be conceptualized as a differentiated network of heterogeneous organizational units operating in distinct national environments and that the differentiation of the various organizational entities and linkages within an MNC is necessary to accurately represent the realities of the business world (Nohria & Ghoshal, 1997). While most of the examples pointed out in literature are manufacturing companies, there is no reason to neglect this argument when referring to service companies like SAP, KPMG, FedEx or Microsoft. So in this study, the service MNC is conceptualized as a differentiated network.

From this perspective, it is useful to refer to role typologies. This research stream in international business literature focuses on this differentiation of subsidiary roles. While there have been many role typologies suggested in literature (see, e.g., the overviews by Birkinshaw & Morrison, 1995, or Schmid, 2004), the typology by Gupta & Govindarajan has been one of the most influential and will be the base of this study.

In the network literature, it is commonly accepted, that the borders of a MNC network are blurred and not easily defined (Hakansson & Johanson, 1988) and is not easy to separate the “intra-organizational network” from the “inter-organizational network” (Andersson & Forsgren, 1995). In particular the cooperative forms of internationalization (e.g. Hennart, 1989), as licensing, franchising, or joint ventures, make obvious, that MNCs also comprise of such foreign organizational units (Boddewyn, Halbrich, & Perry, 1986). It becomes increasingly evident that subsidiaries that are established as cooperative arrangements also have an important role to play for the MNC in a particular foreign market.

In particular for knowledge-intensive services (Aharoni, 1996), such as auditing companies, consulting companies, advertising agencies, etc., international alliance networks are a very

common organizational form (Grosse, 2000; Aharoni, 2000). But even in less knowledge-intensive service industries, such as hotels or fast food restaurants, cooperative modes of internationalization are common (Contractor & Kundu, 1998).

Thus, it seems reasonable to consider foreign organizational units that are not wholly owned as part of the MNC when studying the internationalization of service companies (Roberts, 1999). The term “subsidiary” thus refers to cooperatively established subsidiaries (e.g. joint ventures) as well as to wholly-owned subsidiaries.

Role typologies in the past have been “concerned primarily with dominantly owned or wholly owned subsidiaries, because the literature addressing the phenomenon ... has focused on such cases. Nonetheless, our expectation is that many of the processes ... could be adapted to other forms of subsidiary, such as international joint ventures“ (Birkinshaw/Hood 1998, p. 774). Following this assumption, we extend the findings of the role typology stream to cooperative arrangements as one type of subsidiary. Since this study is exploratory in nature in this context, we do not distinguish between the various types of cooperative arrangements.

3. Theoretical and Conceptual Framework

Following the network models of the MNC, the MNC can be conceptualized as a network of different types of intra-MNC transactions: capital flows, e.g. investments into or dividend repatriations from various subsidiaries, product flows, e.g. intracorporate exports to or imports from various subsidiaries, and knowledge flows, e.g. technology and/or skill transfer to and from various subsidiaries (Gupta & Govindarajan, 1991). For several reasons, knowledge flows seem to be the most important of these three flows.

In economics literature it is commonly accepted today that MNC exist primarily because they provide a superior way of transferring knowledge across borders (Caves, 1982; Teece, 1981). Also, as innovation is considered a prerequisite of company success, the management of knowledge flows is crucial for a MNC to develop a competitive advantage (Kogut & Zander, 1993; Bartlett & Ghoshal, 1989; Harzing & Noorderhaven, 2006). In terms of the Bartlett &

Ghoshal (1989) typology of MNC, the proportion of “transnational MNCs” is considered to be rising, and in that MNC type, knowledge flows are particularly important (Gupta & Govindarajan, 1991).

Considering service companies, many of the service industries that are highly internationalized, can be considered to be knowledge-intensive (Grosse, 2000; Moore & Birkinshaw, 1998). In some service industries, e.g. consulting companies or advertising agencies, the worldwide creation and exploitation of knowledge is likely to be the main advantage of international activities, as compared to manufacturing companies, which can in addition exploit advantages through product flows to a greater degree.

So even though different kinds of flows are important for the MNC strategy, a lack of prior research on subsidiary differences within a service MNC network and the particular relevance of knowledge flows lead us to choose knowledge flows as the focus of this study. Focusing on variations in knowledge flow patterns, Gupta & Govindarajan (1991) have proposed that MNC subsidiaries could be categorized along two dimensions:. Subsidiaries can engage in different levels of knowledge outflows to the rest of the corporation and in different levels of knowledge inflows from the rest of the MNC. From those two dimensions they derive four generic subsidiary roles (Gupta & Govindarajan, 1991, 1994; Harzing & Noorderhaven, 2006; Randøy & Li, 1998):

- A global innovator (knowledge provider) is predominantly a source of knowledge for the other subsidiaries. An example of such a knowledge-providing subsidiary of a service MNC is SAP Labs U.S., in which a significant portion of SAP’s technological innovations have originated. The subsidiary that is located in Palo Alto, California, maintains strategic relationships with local organizations such as Stanford University and Intel, occupies more than 1,500 people, and its mission is to leverage the valuable assets within Silicon Valley to drive innovation.

- An integrated player (knowledge networker) is also responsible for creating knowledge that can be utilized by other subsidiaries: However, the knowledge networker additionally has to rely on knowledge from others and thus, receives and sends high levels of knowledge from and to the subsidiary. With this bi-directional integration in knowledge flows, it can be considered a “centre-of-excellence” that is tightly embedded in the MNC and at the same time in its local environment (Frost, Birkinshaw, & Ensign, 2002). For example, Unisys maintains a subsidiary in Brussels that serves as a centre of excellence for biometrics and that works in close cooperation with peer subsidiaries and the parent company in the USA in developing new solutions for personal identification.
- The implementer (knowledge user) relies heavily on knowledge inflows from the headquarters and from sister subsidiaries, and exploits the competitive advantages stemming from that knowledge in its host market without initiating high knowledge outflows to the rest of the corporation. A consulting company’s subsidiary in a small emerging market can often be classified as a knowledge user, with one main purpose of the subsidiary being to offer its services to local subsidiaries of large international companies. This is a form of “customer following”, which is often considered the most important motive for service internationalization (Coviello & Martin, 1999). One important competitive advantage of the company in that case is the ability to exploit knowledge advantages about the specific needs of a client from previous business in the home country in the new market. So one-directional knowledge flows should be a common phenomenon with the “customer following” motive.
- Finally, the local innovator (knowledge independent) role implies that the subsidiary is isolated from knowledge flows in the MNC and has to take local responsibility for the creation of the necessary know-how itself. Referring to the network models, companies with a “multinational orientation” (Bartlett & Ghoshal, 1989) consist mainly of subsidiaries that can be considered as knowledge independents. In the service sector,

international law firms might be seen in this role, since the local legal systems play a very important role and the heterogeneity often makes knowledge exchange between organizational units in different countries fruitless.

It has to be noted, however, that the examples are just for explanation and no empirical analysis of these examples, based on a set of criteria, has been carried out. In the remainder of this paper, we will use the terminology of Randøy & Li (1998) for the four strategic roles that was displayed in brackets in the list.

4. Proposed Relationships

4.1. Market Entry Strategies

The market entry strategies available for a (service) company to operate in a foreign market can be arranged on a continuum stretching between market and hierarchy. Market transactions, cooperative organizational units, and wholly-owned subsidiaries represent a cumulative degree of ownership, vertical integration, resource commitment and risk for a firm (Erramilli & Rao, 1993; Anderson & Gatignon, 1986).

While the market entry strategy is considered a crucial decision in the context of internationalization strategy (Agarwal & Ramaswami, 1992; Sarkar & Cavusgil, 1996), two deficits can be identified with regard to the perspective of a differentiated network of a service MNC. Firstly, almost all studies on the market entry strategy are analyzing manufacturing companies (Sarkar & Cavusgil, 1996), and service companies' entry strategies are rarely analyzed (Erramilli & Rao, 1993). Secondly, most studies have analyzed influence factors on the choice of the market entry mode that are expected to enhance efficiency, based on the transaction cost theory, while the effectiveness of a certain market entry mode for the implementation of a certain company strategy has been rather neglected (Aulakh & Kotabe, 1997; Kim & Hwang, 1992; Pla-Barber, 2001). The few studies that use strategic considerations as a potential influence factor on the market entry strategy regard only the

MNC level and do not differentiate between heterogeneous subsidiary strategies (Randøy & Dibrell, 2002; Kim & Hwang, 1992). However, based on the role typologies, in particular the typology of Gupta & Govindarajan, the differentiated subsidiary strategies with respect to knowledge flows can be expected to result in different market entry strategies.

Knowledge Inflows

If a company establishes an organizational unit in a foreign market in order to exploit company-specific know-how in that specific market, this implies intensive knowledge flows from the headquarters (or peer subsidiaries) to the focal subsidiary. In that case, a potential cooperation partner in the foreign market would receive a wealth of critical information on the competitive advantages of the MNC, which results in the danger of knowledge dissemination in the host country (Driscoll & Paliwoda, 1997).

The literature on benefits and disadvantages of cooperative arrangements highlights the aspect of learning in a cooperation (Inkpen, 2000; Kale, Singh, & Perlmutter, 2000). The learning of the local partner simultaneously forms the dissemination risk, which is closely connected to cooperative market entry modes. This risk is particularly relevant in the case of intensive knowledge inflows to the subsidiary. In contrast, a market entry mode that allows a higher level of control, such as a wholly-owned subsidiary, seems an appropriate measure to limit the dissemination risk. A positive relationship between knowledge intensity of a subsidiary's activities and the degree of ownership of this subsidiary has been confirmed empirically (Gatignon & Anderson, 1988).

Another argument for this association is that a continuous inflow of knowledge results in an accumulation of knowledge in that specific subsidiary. The knowledge transfer in this direction can thus be understood as an investment in the resource stock of the subsidiary, creating a unique value for the MNC (Dierickx & Cool, 1989). Following the resource-based view, this accumulated resource stock can be more effectively exploited by internalization. Thus, it is postulated:

H1: Subsidiaries that primarily receive knowledge from the MNC (the headquarters and/or peer subsidiaries) are more likely to be established as wholly-owned subsidiaries than as cooperative arrangements.

Knowledge Outflows

Considering knowledge flows from the focal subsidiary to the rest of the MNC, i.e. to the headquarters and/or other subsidiaries, these can only occur at a high level when the subsidiary creates valuable knowledge by itself in the host country. One of the most important arguments in literature in favor of cooperative arrangements is the access to “strategic resources”, and skills and capabilities are considered the most important resources (Barney, 1991). Cooperative units are likely to be preferred when the firm enters a foreign country in order to tap local skills and capabilities (Chang & Rosenzweig, 2001; Hennart & Park, 1993).

While knowledge in the host country could also be developed internally, by the focal subsidiary in the host country itself, external learning via a cooperation is relatively faster than internal learning and the opportunity cost associated with external learning is considered to be lower (Madhok, 1998; Chang & Rosenzweig, 2001). Knowledge dissemination, which was highlighted as a risk for the MNC in the case of high knowledge inflows to the subsidiary, is in the situation of high knowledge outflows reversed, and thus brings a benefit for the MNC. Thus:

H2: Subsidiaries that primarily transfer knowledge to the MNC (the headquarters and/or peer subsidiaries) are more likely to be established as cooperative arrangements than as wholly-owned subsidiaries.

4.2. Coordination Mechanisms

Coordination mechanisms are administrative tools for achieving integration among different units within a MNC, i.e. to align a number of dispersed and yet interdependent international activities. They are used to ensure that all subsidiaries strive towards common organizational

goals (Martinez & Jarillo, 1989). A very broad categorization groups the coordination mechanisms into formal mechanisms and informal, more subtle mechanisms (Martinez & Jarillo, 1991). While the instruments that are discussed in literature in those two categories are plentiful, centralization, formalization/standardization and normative integration are often considered to represent the range of coordination mechanisms quite well (Bartlett & Ghoshal, 1989; Ghoshal & Nohria, 1993; Nohria & Ghoshal, 1997).

Those three mechanisms can be shortly characterized as follows (Pugh et al., 1968; Edström & Galbraith, 1977; Martinez & Jarillo, 1989, 1991; Young & Tavares, 2004): Centralization refers to the locus of decision authority and with reference to international business, it indicates to what degree decisions are taken by the company headquarters in the home country or by the subsidiary itself. Formalization and standardization refer to the use of written policies, rules, job descriptions, and standard procedures, through instruments such as manuals, to give clear and formal guidelines for the behavior in the subsidiaries. Normative integration (also called socialization) refers to building an organizational culture of known and shared strategic objectives and values by training, transfer of managers, career path management, measurement and reward systems, etc. This is a mechanism that allows the subsidiaries flexibility in their daily operations without direct headquarters command, but ensures that the behavior of the subsidiary will still be aligned to the common corporate objectives. Since coordination mechanisms can be considered measures of a MNC to implement international strategies (Galbraith & Kazanjian, 1986; Andersson & Forsgren, 1996), they should differ in their use with different company strategies.

Centralization is one of the most investigated coordination mechanisms (see review by Young & Tavares, 2004). However, while some theoretical arguments could be given that would suggest a relationship between different types of knowledge flows and decision centralization, Gupta & Govindarajan (1994) did not find any significant differences in the level of centralization between their four subsidiary roles in their empirical study. Similarly, a study by Nobel & Birkinshaw (1998) did not reveal any significant differences in the level of

centralization between different knowledge-based subsidiary roles. Therefore, we will not formulate hypotheses on centralization, but include it in the analysis in a more explorative way. Instead, we will focus on normative integration and on formalization/standardization, i.e. one informal and one formal mechanism.

Normative Integration

Gupta & Govindarajan (1991, 1994) argue that knowledge flows lead to interdependence within the MNC network and that interdependence is managed by the use of coordination mechanisms. Thus, the level of knowledge flows, which increases from “knowledge independents” over “knowledge providers” and “knowledge users” up to “knowledge interdependents” would result in an increasing use of normative integration.

Harzing & Noorderhaven (2006) postulate that the directionality of knowledge flows is important and thus, “knowledge providers” should experience a higher level of normative integration than “knowledge users”. They argue that dependencies created by knowledge inflows can be effectively controlled even without the use of normative integration, and thus, knowledge users could be granted a low level of autonomy. But in their empirical study, no significant difference between those two subsidiary roles is found. A reason for this result might be the neglect of horizontal knowledge flows in their reasoning. While the power of centralized coordination might be sufficient considering knowledge flows from the headquarters, that can be centrally controlled, the increasing relevance of horizontal knowledge flows between subsidiaries cannot easily be controlled by headquarter centralization. Here, the rejection of knowledge flows by the focal subsidiary could be a substantial barrier to knowledge transfer. Normative integration as coordination mechanism is therefore primarily recommended in the heterarchical models of the MNC, in which hierarchical control is considered inefficient and ineffective (e.g. Hedlund, 1986; White & Poynter, 1990).

Still, one might look into the directionality of the knowledge flows in more detail. When the focal subsidiary is to transfer knowledge to the rest of the subsidiary (= knowledge outflow), then it could be argued from a resource dependency perspective (Pfeffer, 1981; Levitt & March, 1988), that this subsidiary risks to reduce the value of a unique resource by transferring it to others. Unique resources like specific knowledge can be an internal power base of the subsidiary that helps it to strengthen its position in the MNC network (Andersson & Forsgren, 1996; Young & Tavares, 2004). Thus, a subsidiary could be reluctant to transfer its own knowledge to others. Such knowledge flows are at the same time not easily to be commanded by headquarters, since it is difficult to control whether relevant knowledge exists and whether all relevant knowledge really is transferred. Thus, such knowledge flows are more likely to be induced when they occur voluntarily. One way to stimulate such knowledge flows is to create a strong identification of the subsidiary with the MNC. Then, a motivational disposition of the source unit to send knowledge to the rest of the MNC is enhanced (Gupta & Govindarajan, 1994).

When the focal subsidiary is to receive and use knowledge that originates in the headquarters or other subsidiaries (= knowledge inflow), a similar phenomenon can be observed. The acceptance of such knowledge is a form of appreciation for potentially concurrent subsidiaries, hence, high inflows of knowledge might also reduce the internal power base of a subsidiary (Pfeffer, 1981; Gupta & Govindarajan, 2000). The often observed “not invented here”-syndrome, which poses a barrier for organizational units to use innovations that have been created in other organizational units, is an example for this phenomenon. Again, normative integration as coordination mechanism can overcome this obstacle, because the identification of the subsidiary with the MNC can create the motivational disposition of the subsidiary to acquire new knowledge from the MNC, assimilate it and apply it.

As an additional argument, normative integration results in shared values of the organizational units, common objectives, etc., and is as a consequence likely to enhance the absorptive capacity of all organizational units in the MNC for the knowledge diffused by the

other organizational units (Cohen & Levinthal, 1990). To be more precise, two hypotheses are formulated:

H3a: The level of coordination by normative integration will be positively associated with flows of knowledge from a subsidiary to the rest of the MNC, i.e. the higher the knowledge outflows, the higher the level of normative integration.

H3b: The level of coordination by normative integration will be positively associated with flows of knowledge to a subsidiary from the rest of the MNC, i.e. the higher the knowledge inflows, the higher the level of normative integration.

Formalization/Standardization

Generally, formal mechanisms like formalization and standardization are found to have only limited potential to coordinate a subsidiary in complex, dynamic management situations (Hamel & Prahalad, 1983; Egelhoff, 1982). And knowledge transfers can be considered a rather complex task.

On the other hand, interdependence between organizational units in a MNC, i.e. transactional flows, has been argued to be of critical importance for the use of coordination in general. Operationally interdependent subsidiaries are coordinated more intensively, by diverse coordination mechanisms (Andersson & Forsgren, 1996). And it is commonly accepted in literature and in several studies empirically confirmed, that formal coordination mechanisms are used more intensively when more intensive interdependence between subsidiaries and the headquarters exists (Macharzina, 1993; Ghoshal & Nohria, 1989). It seems plausible, that with increasing interdependence, a standardization and formalization of the exchange relationship is efficient and effective. Such formal instruments can offer a structured context for exchange relationships (Nohria & Ghoshal, 1997). While this has been argued and empirically tested with reference to product flows, the same argument can be used for knowledge flows, which might be considered a form of “informational interdependency” (Macharzina, 1993). While some knowledge might not be more easily transferred when

standardization and formalization are high, a considerable amount of knowledge, namely the explicit, codifiable knowledge, is indeed more easily transferred between different organizational units when formalization and standardization are applied.

Egelhoff (1982) and Galbraith & Kazanjian (1986) have pointed out that the information processing capacity of a MNC can be enhanced by creating lateral relationship between relevant organizational units. Formalization/standardization can offer a context which stimulates lateral knowledge flows. Thus, we postulate:

H4a: The level of coordination by formalization/standardization will be positively associated with flows of knowledge from a subsidiary to the rest of the MNC, i.e. the higher the knowledge outflows, the higher the level of formalization/standardization.

H4b: The level of coordination by formalization/standardization will be positively associated with flows of knowledge to a subsidiary from the rests of the MNC, i.e. the higher the knowledge outflows, the higher the level of formalization/standardization.

5. Method

Data was collected through a questionnaire survey of the heads of organization or heads of international operations of service companies. The MNCs were headquartered in Germany and each respondent was asked to fill in the questionnaire with respect to one specific foreign subsidiary in a specific foreign market.

Participation in the study was sought from 3,500 companies, whose addresses were provided by a German direct-mailing service provider. The selection criteria were “service” as sector and “international sales” existing. 338 questionnaires were returned undeliverable, and 619 companies informed us (after the initial mailing or after a follow-up phone call), that they do not sustain foreign subsidiaries, because their foreign sales were carried out by temporarily sending employees to provide a service in a foreign market. 2,543 potential respondents

remained. We received 253 questionnaires, of which 32 had to be eliminated due to a high rate of missing values, thus the following analysis is based on 221 questionnaires.

The response rate of 9.9% is low, but not unusual for international studies with high-level executives as respondents (Harzing, 1997). We still thoroughly investigated the risk of a non-response bias. 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. Also, we compared responding and non-responding firms from the original sample. Since the only quantifiable information in the original database was the location of the 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. 10 areas in Germany). A Chi²-test did not display any significant differences. Both procedures show no indication of a non-response bias.

The location of the 221 subsidiaries was spread over 38 countries on all continents. The most important host countries were USA (12.5% of subsidiaries in the sample), China (11.5%), 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 1 million EUR and 6.2 bn EUR (mean: 260 million EUR); the subsidiary size varied from 0.1 to 440 million EUR sales (mean: 19.7 million EUR). We have not captured the number of subsidiaries that each MNC has because that would have required a very precise definition of what organizational unit the company has to define as “subsidiary”. The companies were from a diverse field of services, like advertising agencies, consulting companies, software companies, etc. While this neglects the heterogeneity of these services, it is the usual procedure in studies on the manufacturing sector as well and allows a first study into the service sector in general.

Measurement

We used standard well-established research instruments with minor changes in the wording to adapt the instruments to the multinational context of service companies.

Measures for knowledge flows were taken from Gupta & Govindarajan (1994). In their original study, the authors Gupta & Govindarajan (1994) use a nine-item instrument for each of four different knowledge flow contexts. They ask for knowledge flows concerning market data on customers, marketing know-how, purchasing know-how, etc., distinguishing between knowledge outflow and knowledge inflow and between two different transaction partners, i.e. the parent corporation or the peer subsidiaries. Thus, they captured 36 indicators. Fortunately, in addition, they suggest a shortened item-battery that they apply themselves to test their extensive scale for construct validity. Both scales result in equivalent categorizations of the subsidiaries. Thus, we applied the reduced four-item scale to capture knowledge flows. Specifically, we asked the respondents about the magnitude of knowledge and capabilities that the subsidiary transfers to the parent company on a 7-point scale (from 1 = “has a rather low volume” to 7 = “has a very substantial volume”), and adapted that item to account for transfers to peer subsidiaries. We then asked the corresponding questions about the transfer from the parent company and from peer subsidiaries. The two types of knowledge inflow measures (from the parent and from peer subsidiaries) were combined into a composite measure, and the same procedure was applied for two types of knowledge outflow measures (to the parent and to peer subsidiaries). The composite measures are still on a scale from 1 (rather low volume) to 7 (very substantial volume).

Formalization and standardization were measured with two indicators each (following Nohria & Ghoshal, 1997). However, as in previous studies (Pugh et al., 1968; Child, 1972), both mechanisms were highly intercorrelated and therefore considered to form one instrument. Cronbach’s Alpha for the combined construct was .809. Normative integration was measured

with two items, following Harzing (1999). Cronbach's Alpha was .829. Both coordination variables, formalization/standardization and normative integration, were standardized.

Additionally, a number of other variables were captured. Since no hypotheses refer to those additional variables, a detailed explanation of the measurement is not given here. Again, we followed established scales from literature wherever possible, mainly from Guta / Govindarajan and/or Harzing's studies.

6. Results

6.1. Test of Role Typology Based on Knowledge Flows

The first step of the analysis was to investigate the role typology suggested by Gupta/Govindarajan. While Gupta & Govindarajan (1994) used a median-split in their method and thus defined the four groups ex ante, a four-cluster solution has actually been confirmed by Harzing & Noorderhaven (2006) and Randøy & Li (1998), but with samples of manufacturing companies.

For the sample of service companies, we applied the two-step cluster procedure with knowledge inflows and knowledge outflows as the cluster variables. A four cluster-solution was proposed to be optimal. The cluster medians are displayed in figure 1 and table 2. The cluster means show, that a categorization appears which reflects the typology of Gupta/Govindarajan quite well for this sample of subsidiaries of service companies.

It has to be noted, however, that full interdependence of the two dimensions in the framework is not given. In the sample, both correlate with $r = .465$ ($p=.000$). Consistent with findings from Gupta & Govindarajan (1994) and Gupta & Govindarajan (2000), the two dimensions of knowledge flows are not independent from each other, but they are still distinct. Our empirical results can be considered a confirmation of Gupta/Govindarajan's role typology and they indicate that inflow and outflow of knowledge into and from a subsidiary can be used to discriminate between subsidiaries of a service company.

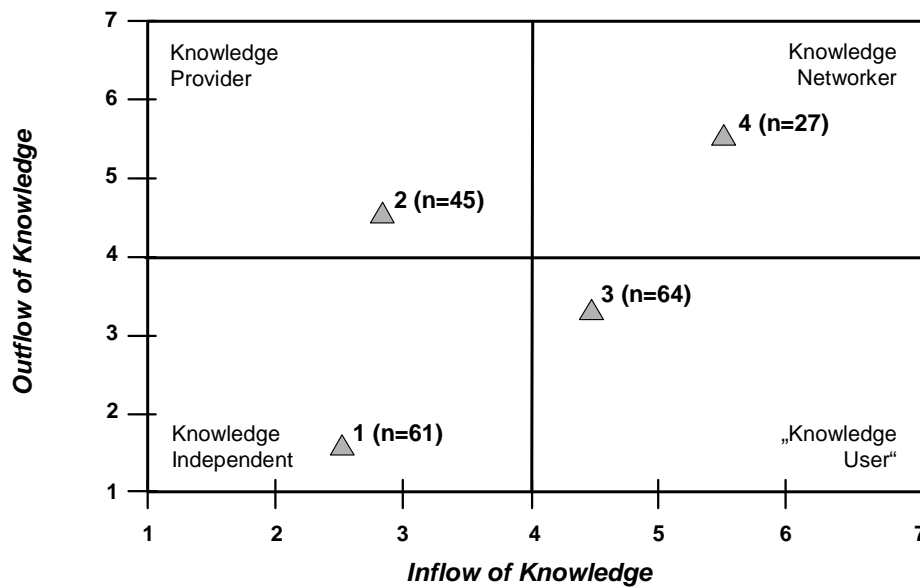


Fig. 1. Cluster solution based on knowledge flows

For the sample, the distribution of subsidiaries across the four strategic roles was as follows: 61 knowledge independents (31.0 %), 64 knowledge users (32.5 %), 45 knowledge providers (22.8 %), and 27 knowledge networkers (13.7 %). The percentage of knowledge independents in the sample is similar to the findings of Gupta & Govindarajan (1994) and of Harzing & Noorderhaven (2006) (see table 1).

In the study of Gupta & Govindarajan (1994) about one third of all subsidiaries were classified as knowledge networkers. But since the authors used a median-split method instead of a cluster analysis to group the subsidiaries, they comment themselves that this percentage is likely to be too high and that it over-estimates the true number of networkers. Thus, the results of Harzing & Noorderhaven (2006) are more suitable for a comparison between manufacturers and service companies. In our sample of service companies, the networkers are only about 14 %, which is substantially lower than the figure of Harzing & Noorderhaven (2006). This seems to demonstrate that knowledge flows in service companies still go predominantly from the company (and here mainly the headquarters, as further analyses have shown) to the subsidiary. Knowledge outflows from the subsidiary occur to a much lesser degree.

Table 1
Distribution of subsidiaries in the four clusters - Comparison with results of previous studies

	Present study		Gupta/Govindarajan 1994		Harzing/Noorderhaven 2006	
	(service companies)		(manufact. companies)		(manufact. companies)	
	Number	Share	Number	Share	Number	Share
Knowledge independents	61	31.0%	111	31.5%	50	29.6%
Knowledge providers	45	22.8%	64	18.2%	51	30.2%
“Knowledge users”	64	32.5%	63	17.9%	35	20.7%
Knowledge networkers	27	13.7%	114	32.4%	33	19.5%
Sum	197	100.0%	352	100.0%	169	100.0%

One explanation could be that service knowledge from the headquarters can easily and without major adaptations be applied in foreign markets, and hence, no new knowledge is created by the subsidiaries. However, another argument is more likely to explain these knowledge flow patterns: Services are usually considered to be more individualistically tailored to the specific customer needs and carried out with more interaction intensity (Erramilli & Rao, 1993; Boddewyn, Halbrich, & Perry, 1986). Maybe the knowledge that stems from a local operation is in this case more location-specific (Rugman & Verbeke, 1992), which would explain the low level of knowledge outflows from the subsidiaries.

In table 2, the four clusters are described in more detail. The highly significant F-value for knowledge inflow and knowledge outflow is not surprising, since those two variables were the cluster variables. But the high values of the F-statistics show that knowledge flows serve well to discriminate between the four clusters.

As can be seen, the knowledge networker is also characterized by the highest product inflows and product outflows, the knowledge users by rather high inflow and low outflow and the knowledge independents by rather low product inflows and outflows. Thus, there seems to be an association between the strategic roles of subsidiaries concerning knowledge flows and their role concerning product flows. However, since none of the differences are significant, product flows and knowledge flows can be considered to be distinct dimensions.

Table 2
Differences in certain characteristics across subsidiary roles / knowledge clusters (ANOVA)

	<i>Mean values</i>				<i>F-statistic and Significance</i>
	1 Knowledge Independent (n=61)	2 Knowledge Provider (n=45)	3 "Knowledge User" (n=64)	4 Knowledge Networker (n=27)	
Knowledge Inflow	2.53	2.85	4.45	5.38	101.368***
Knowledge Outflow	1.63	4.48	3.27	5.42	147.841***
Product Inflow	2.30	2.88	2.58	3.07	2.520 [†]
Product Outflow	1.89	2.06	1.86	2.30	.221
Relative Subsidiary Size (Sales)	4.2 %	26.6%	16.1%	32.1%	11.069***
Most Frequent Host Region	Eastern Europe	USA	China, India	Western Europe	

Relative Subsidiary Size (Sales) = Sales Volume of the Subsidiary / Sales Volume of the MNC.

*Significance levels: [†]: p<.1; *: p<.05; **: p<.01; ***: p<.001.*

It is noteworthy that the knowledge networkers are the largest subsidiaries (relatively to their respective MNCs) (they are on average responsible for 32.1% of the MNC's sales), while the knowledge independents are the relatively smallest. This indicates that size of a subsidiary does increase its importance in the network and this importance does not lead to independence, but, on the contrary, to a tight interaction with the rest of the MNC.

In this sample, the knowledge networkers were most often located in Western Europe, the knowledge independents in Eastern Europe. Subsidiaries in the USA were often knowledge providers, while the subsidiaries in China and India were primarily receiving knowledge from the rest of the MNC.

6.2. Knowledge Flows and Market Entry Strategies

To test the hypotheses concerning the influence of the subsidiary strategy (based on knowledge flows) on the market entry strategy, we used a contingency table with the four knowledge clusters and the two relevant types of market entry strategy (cooperative arrangement vs. wholly-owned subsidiary). First of all, it can be noted that 59% of all subsidiaries in the sample are cooperative arrangements. This high value confirms the assumption that cooperation is a very common market entry mode in the service sector.

Table 3

Contingency table between subsidiary role / knowledge cluster and market entry strategy

	1 Knowledge Independent	2 Knowledge Provider	3 "Knowledge User"	4 Knowledge Networker	Total Sample
Cooperative Arrangement	60.3 %	78.2 % *	56.1 %	37.1 %	59.0 %
Wholly-owned Subsidiary	39.7 %	21.8 % *	43.9 %	62.9 % *	41.0 %
Sum	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

Chi²=14.307; p < .001

Significance levels: †: p<.1; *: p<.05; **: p<.01; ***: p<.001.

A highly significant Chi²-value indicates that there exists a relationship between both variables. As an analysis of the standardized residuals in the contingency table shows, knowledge providers are indeed significantly more frequently established as cooperative arrangements than as wholly-owned subsidiaries. In hypothesis H1, this was predicted due to the access to local knowledge that cooperation partners can provide for a MNC, and thus, H1 finds confirmation in the data. 78.2% of all subsidiaries in the knowledge provider cluster are cooperative units.

In H2, it was suggested that companies are less likely to use a cooperative market entry mode for their subsidiary when the subsidiary primarily uses knowledge that originates from the rest of the MNC. While 56.1% cooperative arrangements for the knowledge users is slightly below the average of 59.0%, this difference is not significant. Hence, H2 has to be rejected. The argument that inflows of knowledge need to be protected by full ownership, does not seem to hold true in the sample, and has to be investigated in more detail in further research.

6.3. Knowledge Flows and Coordination Mechanisms

Hypotheses 3 and 4 predicted that the use of normative integration and formalization/standardization would positively correspond with knowledge flows. This was at first analyzed based on the role typology by comparing the mean value of the use of the coordination mechanisms across the four different knowledge clusters.

Table 4

Use of coordination mechanisms across subsidiary roles / knowledge clusters (ANOVA)

	<i>Mean values</i>				<i>F-statistic and Significance</i>
	1 Knowledge Independent (n=61)	2 Knowledge Provider (n=45)	3 "Knowledge User" (n=64)	4 Knowledge Networker (n=27)	
Centralization of operational decisions	-.37	-.06	.14	-.26	1.397
Formalization/Standardization	-.62	.12	.19	.45	7.503***
Normative Integration	-.06	.27	.21	.37	15.381***

*Significance levels: [†]: p<.1; *: p<.05; **: p<.01; ***: p<.001.*

Considering normative integration, the varying levels of this instrument across the four clusters support the hypothesis very well. The high effort of normative integration is obviously avoided for knowledge independents, but the effort rises with increasing knowledge inflows and with increasing knowledge outflows and is highest for the knowledge networker. The significant F-value provides support of H3a and H3b (and will be looked into in more detail in the next section). The pattern looks similar to the findings from Harzing & Noorderhaven (2006) in the manufacturing sector.

Formalization/standardization is employed in a similar pattern and the empirical results pertaining to formalization/standardization correspond with the predictions of hypotheses 4a and 4b.

For both instruments, pairwise Scheffé-tests (not displayed) confirm the patterns that are apparent in the table: In cluster 1 the instruments are used in significantly lower intensity than in clusters 2 and 3. No significant differences can be found between clusters 2 and 3, but both clusters are significantly lower in the use of normative integration and formalization/standardization than cluster 4.

Also, a set of hierarchical regression analyses was carried out to test the four hypotheses concerning the coordination mechanisms further. Here, the coordination mechanisms (e.g. the level of formalization/standardization and the level of normative integration) were used as the dependent variable in a regression analysis and knowledge inflow and knowledge outflow as

two independent variables. In the regression analysis, three variables that have been shown to be relevant for the use of coordination mechanisms, namely the complexity of the host country environment (Egelhoff, 1982), product inflows, and product outflows (Macharzina, 1993; Ghoshal & Nohria, 1989; Andersson & Forsgren, 1996), were used as control variables.

Table 5
Results of a set of hierarchical regression analyses (standardized regression coefficients)

	Centralization (operational decisions)		Formalization/ Standardization		Normative Integration	
Complexity of the Host Environment	-.05	-.03	.195**	.144**	.189*	.102
Product Inflow	.11	.12	.152	.069	.307***	.222*
Product Outflow	-.15	.15	.214*	.217*	-.109	-0.098
Knowledge Inflow		.05		.299***		.105 [†]
Knowledge Outflow		-.14		.241*		.415***
RSQ	.051	.067	.120	.318	.107	.272
F	1.537	1.201	4.610	9.245	4.086	7.461
p	.211	.316	.005	.000	.009	.000
Δ RSQ		.016		.198***		.165***

Significance levels: [†]: $p < .1$; *: $p < .05$; **: $p < .01$; ***: $p < .001$.

For formalization/standardization, including the knowledge flows in the model enhances the explanatory power of the model significantly. Knowledge inflow into the subsidiary leads to a highly significant higher level of formalization/standardization. Knowledge outflow also increases formalization/standardization, but to a lesser degree. Both relationships are significant, however, providing full support for H4a and for H4b.

For normative integration, it is mainly the knowledge outflow that leads to an increased level of this coordination mechanism. H3b receives full support from the data. Knowledge inflows led to a higher level of normative integration, but this relationship is only significant at the .1-level and H3b can thus not be fully confirmed. This indicates that normative integration is stronger necessary in order to lead a subsidiary to share knowledge with the rest of the MNC than in order to convince a subsidiary to accept knowledge from others, a finding that seems plausible.

7. Limitations

Obviously, the study has a number of limitations that have to be considered when interpreting the results. Three major limitations can be seen:

The first limitation lies in the sample of the study. With a sample size of more than 200, the study is in a range that seems adequate for this research and is within the limits that are usually sample sizes in international business studies. However, a clustering approach as used in this study divides the sample in groups, in this case in four groups with sample sizes in each group down to 27 in the smallest cluster. A larger sample size would be appropriate to be able to investigate each cluster in more detail, e.g. to look into the distribution of different service industries in the cluster, etc. Future studies would have to include more subsidiaries and in particular have a stronger focus on differences between different services.

The origin of the service MNCs in the sample is Germany, and previous research has demonstrated a home country effect on corporate conduct. Thus, generalizability to MNCs from other countries has to be further investigated.

The measures that were used for knowledge flows and for the coordination instruments were perceptual measures and they were captured from the perspective of the headquarters, not the subsidiary. Additionally, we have a single informant in each company, so common method bias is a potential problem. However, the results of a factor analysis across all perceptual variables results in a factor distribution that indicates that a common method variance is not likely to be a major concern in this study (following the procedure by Podsakoff & Organ, 1986).

8. Conclusion and Implications

In this paper, we conceptualized the service MNC as a network of flows between local subsidiaries in different countries and the rest of the MNC and focused on knowledge flows. We referred to a well-known model of subsidiary roles suggested by Gupta & Govindarajan

(1991) and transferred it to service MNC. While their article has been often cited, empirical studies on the model were rare, and exclusively regarding manufacturing companies. A generalization of the model to service companies had not yet been tested.

We then proposed a number of hypotheses regarding systematic differences in market entry strategies and in coordination mechanisms depending on the magnitude and direction of knowledge flows.

In our study, we found significant inter-subsidary differences in knowledge flow patterns. More specifically, based on knowledge inflows and knowledge outflows, we were able to identify four distinct strategic roles of subsidiaries. Thus, the study confirmed the generalizability of the model proposed by Gupta/Govindarajan into the service sector.

Secondly, the study demonstrated that knowledge flows have predictive power for the headquarters-subsidiary-relationships. The four roles (or knowledge flow clusters) are associated with different market entry strategies and coordination mechanisms. It was shown that one-sided (asymmetrical) knowledge outflows from the subsidiary to the rest of the MNC (i.e. a subsidiary in the role of a knowledge provider) lead to a preference for cooperative arrangements for this subsidiary. This was expected, since cooperative units in the foreign market provide the MNC with easy and quick access to local market knowledge. On the other hand, it could not be confirmed that knowledge users are more often than random wholly-owned units. However, the knowledge networkers, with their intensive, two-sided integration in knowledge flows (which might be called “centres of excellence”), tend to be strongly tied to the company. A majority of subsidiaries in this cluster are wholly-owned subsidiaries.

Also, knowledge flows influence the use of coordination mechanisms. Normative integration is of paramount importance for stimulating knowledge flows, confirming the extant literature on network models of the MNC. But formal mechanisms, which are often downplayed in more recent international management literature, are also important to provide a structured

context for exchange relationships. Both coordination mechanisms are used with increasing intensity, when knowledge flows from and to the subsidiary increase.

In sum, this study demonstrated that knowledge flows in a MNC network are an important variable to describe MNC subsidiaries in foreign markets and that they are important strategic influences on the relationship between the MNC headquarters and a specific subsidiary.

However, the role typology investigated is based on only two dimensions, knowledge inflows and knowledge outflows. It was demonstrated that these two dimensions are important, and that they have predictive power for market entry strategies and for the use of coordination mechanisms. However, it was not proven, that those two dimensions are the ideal dimensions for such a typology. A comparison with other potential dimensions for a role typology remains for further research.

Two dimensions are likely to over-simplify MNC reality (Schmid, 2004). More complex role typologies with a wider set of role dimensions could be a solution to this problem, and could be an interesting topic of further research.

References

- Agarwal, S., Ramaswami, S. N. (1992). Choice of foreign market entry mode: Impact of ownership, location and internalization factors. *Journal of International business studies*, 23 (1), 517-551.
- Aharoni, Y. (1996). The organization of global service MNEs. *International Studies of Management & Organization*, 26 (2), 6-23.
- Aharoni, Y. (2000) Introduction - Setting the scene. In Y. Aharoni and L. Nachum (eds.), *Globalization of Services*, London: Routledge, 1-21.
- Anderson, E., Gatignon, H. (1986). Modes of foreign entry: A transaction cost analysis and proposition. *Journal of International Business Studies*, 29 (1), 1-26.
- Andersson, U., Forsgren, M. (1996). Subsidiary embeddedness and control in the multinational corporation. *International Business Review*, 5 (5), 487-508.
- Andersson, U., Forsgren, M. (1995) Using networks to determine multinational parental control of subsidiaries. In S. Paliwoda and J. K. Ryans (eds.), *International Marketing Reader*, London-New York: Routledge, 72-87.

- Armstrong, J. S., Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14, 396-402.
- Aulakh, P., Kotabe, M. (1997). Antecedents and performance implications of channel integration. *Journal of International Business Studies*, 28 (1), 145-175.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1), 99-120.
- Bartlett, C. A., & Ghoshal, S. (1989). *Managing across borders: The transnational solution*. Boston, MA: Harvard Business School Press.
- Birkinshaw, J. M. (2001) Strategy and management in MNE subsidiaries. In A. Rugman and T. L. Brewer (eds.), *Oxford Handbook of IB*, Oxford: Oxford Publishing, 380-401.
- Birkinshaw, J. M., Hood, N. (1998). Multinational subsidiary evolution: Capability and charter change in foreign-owned subsidiary companies. *Academy of Management Review*, 23 (4), 773-795.
- 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.
- Blomstermo, A., Sharma, D. D., & Sallis, J. (2006). Choice of foreign market entry mode in service firms. *International Marketing Review*, 23 (2), 211-229.
- Boddewyn, J. J., Halbrich, M. B., & Perry, A. C. (1986). Service multinationals: Conceptualization, measurement and theory. *Journal of International Business Studies*, 17 (3), 41-58.
- Brouthers, K. D., Brouthers, L. E. (2003). Why service and manufacturing entry mode choices differ: The influence of transaction cost factors, risk and trust. *Journal of Management Studies*, 40 (5), 1179-1204.
- Caves, R. E. (1982). *Multinational enterprise and economic analysis*. Cambridge et al.: Cambridge University Press.
- Chang, S. J., Rosenzweig, P. M. (2001). The choice of entry mode in sequential foreign direct investment. *Strategic Management Journal*, 22 (8), 747-776.
- Child, J. (1972). Organization structure and strategies of control: A replication of the Aston study. *Administrative Science Quarterly*, 17, 163-177.
- Cohen, W. M., Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35 (1), 128-152.
- Contractor, F. J., Kundu, S. K. (1998). Franchising versus company-run operations: Modal choice in the global hotel sector. *Journal of International Marketing*, 6 (2), 28-53.
- Coviello, N. E., Martin, K. A. M. (1999). Internationalization of service SMEs: An integrated perspective from the engineering consulting sector. *Journal of International Marketing*, 7 (4), 42-66.

- Dierickx, I., Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35 (12), 1504-1511.
- Driscoll, A., Paliwoda, S. (1997). Dimensionalizing international market entry mode choice. *Journal of Marketing Management*, 13 (1), 57-87.
- Dunning, J. H. (1989). Multinational enterprises and the growth of services: Some conceptual and theoretical issues. *The Service Industries Journal*, 9 (1), 5-39.
- Edström, A., Galbraith, J. R. (1977). Transfer of managers as a coordination and control strategy in multinational organizations. *Administrative Science Quarterly*, 22, 248-263.
- Egelhoff, W. G. (1982). Strategy and structure in multinational corporations: An information-processing approach. *Administrative Science Quarterly*, 27 (3), 435-458.
- Ekeledo, I., Sivakumar, K. (2004). International market entry mode strategies of manufacturing firms and service firms. *International Marketing Review*, 21 (1), 68-101.
- Erramilli, K., Rao, C. P. (1993). Service firms' international entry-mode choice: A modified transaction-cost analysis approach. *Journal of Marketing*, 57 (3), 19-38.
- Frost, T., Birkinshaw, J., & Ensign, P. (2002). Centers of excellence in multinational corporations. *Strategic Management Journal*, 23 (11), 997-1018.
- Galbraith, J. R., & Kazanjian, R. K. (1986). *Strategy implementation: Structure, systems, and process*. St. Paul, MN: West Publishing Co.
- Gatignon, H., Anderson, E. (1988). The multinational corporation's degree of control over foreign subsidiaries. *Journal of Law, Economics, and Organization*, 4 (2), 305-336.
- 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.
- Grosse, R. (2000) Knowledge creation and transfer in global service firms. In Y. Aharoni and L. Nachum (eds.), *Globalization of Services - Some Implications for Theory and Practice*, London: Routledge, 217-232.
- Gupta, A., Govindarajan, V. (1991). Knowledge flows and the structure of control within multinational corporations. *Academy of Management Review*, 16 (4), 768-792.
- Gupta, A., Govindarajan, V. (1994). Organizing for knowledge within MNCs. *International Business Review*, 3 (4), 443-457.
- Gupta, A. K., Govindarajan, V. (2000). Knowledge flows within multinational corporations. *Strategic Management Journal*, 21 (4), 473-496.

- Hakansson, H. and Johanson, J. (1988) Formal and informal cooperation strategies in international industrial networks. In F. Contractor and P. Lorange (eds.), *Cooperative Strategies in International Business*, Lexington/MA: Lexington Books: 369-379.
- Hamel, G., Prahalad, C. K. (1983). Managing strategic responsibility in the MNC. *Strategic Management Journal*, 4 (4), 341-351.
- Harzing, A. W. (1999). *Managing the Multinationals: An International Study of Control Mechanisms*. Northampton/MA: Edward Elgar.
- 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., 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.
- Hedlund, G. (1986). The hypermodern MNC: A heterarchy? *Human Resource Management*, 25, 9-35.
- Hennart, J. F. (1989). Can the "new forms of investment" substitute for the "old forms"? A transaction costs perspective. *Journal of International Business Studies*, 20 (2), 211-234.
- Hennart, J. F., Park, Y. (1993). Greenfield vs. acquisition: The strategy of Japanese investors in the United States. *Management Science*, 30 (9), 1054-1070.
- Inkpen, A. C. (2000). Learning through joint ventures: a framework of knowledge acquisition. *Journal of Management Studies*, 37 (7), 1019-1043.
- Kale, P., Singh, H., & Perlmutter, H. (2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, 21 (3), 217-237.
- Kim, W. C., Hwang, P. (1992). Global strategy and multinationals' entry mode choice. *Journal of International Business Studies*, 23 (1), 29-53.
- Knight, G. (1999). International services marketing: review of research, 1980-1998. *Journal of Services Marketing*, 13 (4/5), 347-360.
- Kogut, B., Zander, U. (1993). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 24 (4), 625-646.
- Kumar, V., Subramaniam, V. (1997). A contingency framework for the mode of entry decision. *Journal of World Business*, 32 (1), 53-72.
- Levitt, B., March, J. G. (1988). Organizational learning. *Annual Review of Sociology*, 14, 319-340.
- Macharzina, K. (1993) Steuerung von Auslandsgesellschaften bei Internationalisierungsstrategien. In M. Haller et al. (eds.), *Globalisierung der Wirtschaft - Einwirkungen auf die Betriebswirtschaftslehre*, Bern: Haupt, 77-109.

- Madhok, A. (1998). The nature of multinational firm boundaries: Transaction costs, firm capabilities and foreign market entry mode. *International Business Review*, 7 (3), 259-290.
- Malhotra, N., Agarwal, J., & Ulgado, F. (2004). Internationalization and entry modes: A multitheoretical framework and research propositions. *Journal of International Marketing*, 11 (4), 1- 31 2.
- Martinez, J. I., Jarillo, J. C. (1989). The evolution of research on coordination mechanisms in multinational corporations. *Journal of International Business Studies*, 20 (3), 489-514.
- Martinez, J. I., Jarillo, J. C. (1991). Coordination demands of international strategies. *Journal of International Business Studies*, 22 (3), 429-444.
- Moore, K., Birkinshaw, J. (1998). Managing knowledge in global service firms: Centres of excellence. *Academy of Management Executive*, 12 (4), 81-92.
- Nobel, R., Birkinshaw, J. (1998). Innovation in multinational corporations: Control and communication patterns in international R&D. *Strategic Management Journal*, 19 (5), 479-496.
- Nohria, N., & Ghoshal, S. (1997). *The differentiated network: Organizing multinational corporations for value creation*. San Francisco/CA: Jossey-Bass.
- Pfeffer, J. (1981). *Power in organizations*. Boston: Pitman.
- Pla-Barber, J. (2001). The internalisation of foreign distribution and production activities: New empirical evidence from Spain. *International Business Review*, 10, 455-474.
- Podsakoff, P. M., Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12 (4),
- Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1968). Dimensions of organization structure. *Administrative Science Quarterly*, 13, 65-105.
- Randøy, T., Dibrell, C. (2002). How and why Norwegian MNCs commit resources abroad: Beyond choice of entry mode. *Management International Review*, 42 (2), 119-140.
- Randøy, T. and Li, J. (1998) Global resource flows and MNE network integration. In J. M. Birkinshaw and N. Hood (eds.), *Multinational Corporate Evolution and Subsidiary Development*, London: MacMillan, 76-101.
- Roberts, J. (1999). The internationalisation of business service firms: A stages approach. *The Service Industries Journal*, 19 (4), 68-88.
- Rugman, A., Verbeke, A. (1992). A note on the transnational solution and the transaction cost theory of multinational strategic management. *Journal of International Business Studies*, 23 (4), 761-772.
- Sarkar, M., Cavusgil, T. (1996). Trends in international business thought and literature: A review of international entry mode research: Integration and synthesis. *The International Executive*, 28 (6), 825-847.

- Schmid, S. (2004) The roles of foreign subsidiaries in network MNCs - a critical review of the literature and some directions for future research. In J. Larimo (ed.), *European Research on Foreign Direct Investment and International Human Resource Management*, Vaasa: Vaasan Ylipiston Julkaisuja, 237-255.
- Teece, D. J. (1981). The multinational enterprise: Market failure and market power considerations. *Sloan Management Review*, 22 (3), 3-17.
- Vandermerwe, S., Chadwick, M. (1989). The internationalisation of services. *The Service Industries Journal*, 9 (1), 79-93.
- White, R. and Poynter, T. (1990) Organizing for a world-wide advantage. In Y. L. Doz, C. A. Bartlett, and G. Hedlund (eds.), *Managing the Global Firm*, London: Routledge, 95-113.
- Young, S., Tavares, A. T. (2004). Centralization and autonomy: Back to the future. *International Business Review*, 13, 215-237.