Paper to be presented at
the DRUID16 20th Anniversary Conference
Copenhagen, June 13-15, 2016

The investment-divestment relationship: Resource shifts and intersubsidiary competition within MNEs

Vivien Procher
University of Wuppertal
Jackstaedt Center for Entrepreneurship & Innovation Research
procher@uni-wuppertal.de

Dirk Engel
University of Applied Science Stralsund
International Managment
dirk.engel@fh-stralsund.de

Abstract

Extant literature has examined corporate investment and divestment by multinational enterprises (MNEs) solely as discrete and separate decisions. However, MNEs' resource shifts and restructuring activities are often as a series of interconnected decisions. Using a panel of 3,524 French MNEs we analyse their investment and divestment of subsidiaries between 2002 and 2010. Our dynamic approach shows that both new subsidiaries at home and abroad threaten the survival of existing subsidiaries. Moreover, divestments even enhance the likelihood of subsequent investments. Overall, our findings support the theoretical notion of intersubsidiary competition, whereby divestment opens up new investment opportunities while new investment pose threats to the existing MNEs' subsidiary network in subsequent periods. The strong intertemporal linkage between investment and divestment decisions highlights that firm internationalization does not necessarily follow a steady or linear expansion path.

Jelcodes:F23,D21

The investment-divestment relationship: Resource shifts and intersubsidiary competition within MNEs

Abstract

Extant literature has examined corporate investment and divestment by multinational enterprises (MNEs) solely as discrete and separate decisions. However, MNEs' resource shifts and restructuring activities are often as a series of interconnected decisions. Using a panel of 3,524 French MNEs we analyse their investment and divestment of subsidiaries between 2002 and 2010. Our dynamic approach shows that both new subsidiaries at home and abroad threaten the survival of existing subsidiaries. Moreover, divestments even enhance the likelihood of subsequent investments. Overall, our findings support the theoretical notion of intersubsidiary competition, whereby divestment opens up new investment opportunities while new investment pose threats to the existing MNEs' subsidiary network in subsequent periods. The strong intertemporal linkage between investment and divestment decisions highlights that firm internationalization does not necessarily follow a steady or linear expansion path.

Keywords: divestment, investment, MNE, firm network, subsidiaries, entry and exit

1. Introduction

Multinational enterprises (MNEs) benefit from the portfolio and subsidiary structure to create value. However, global competition and faster business cycles require MNEs to continuously adapt their corporate strategy and organisation of business functions. Consequently MNEs engage in organizational restructuring and relocation of resources in order to increase the firm's efficiency and to secure their competitive advantage (Boddewyn, 1983; Hamilton & Chow, 1993; Feenstra & Hanson, 1997). A prominent route to reallocate resources is to enter and exit markets via investment and divestment (e.g., Benito & Welch 1997). While "Transnational Corporations adopt dynamic strategies towards the global configuration of their activities and, for this reason, divestment and new investments go hand in hand" (UNCTAD, 2013, p. 27), most studies have concentrated either on firm investment or divestment, thereby implicitly treating them as independent, static and separate strategic decisions (for exceptions see e.g., Berry, 2010, and 2013; Head & Ries, 2001; Nachum & Song, 2011; Villalonga, & McGahan, 2005) Analysing single investment decisions assumes current moves to be unconnected to past moves. However, explicitly neglecting the path dependency of moves and the evolutionary process of MNEs restricts our understanding of firm growth and international business activities.

Only a limited number of studies have examined the intrafirm relationship between investment and divestment decisions: Nachum and Song (2011) showed that the decision to enter and exit new markets is strongly related to past moves. Berry (2010) found that new foreign subsidiaries increase the likelihood of divesting domestic subsidiaries in subsequent periods. We define the latter pattern as *divestment-follows-investment* relationship. However, a systematic review that examines this relationship for both the domestic and foreign arena is still missing. Moreover, it remains an open question whether the relationship holds for the opposite order of events, namely, whether *investment-follows-divestment*, too. Therefore, in this study we encompass a more dynamic view on MNEs organizational restructuring and relocation of resources by examining the relationship between MNEs investment and divestment decisions.

Our paper contributes to the literature on firm internationalization and organization in three ways: At first, we enrich our understanding of the investment-divestment relationship by analysing the intersubsidiary competition not only for domestic subsidiaries but also for foreign subsidiaries. While foreign investments pose a threat to the survival of domestic subsidiaries (Berry, 2010), we have fewer insights on whether

domestic investments pose a similar threat to the survival of foreign subsidiaries. Subsidiaries in the domestic and foreign arena face both opportunities and risks of being in an MNE network. The HQ-subsidiary hierarchy entails that domestic subsidiaries are expected to have a home turf advantage due to the emotional and cultural ties with the HQ while foreign subsidiaries are considered to be more peripheral (Boddewyn, 1983). Thus, domestic and foreign subsidiaries constitute two distinct groups that compete with other. Second and in response to researchers like Song (2014) and Wan, Chen and Yiu, (2015), we shed light on the chronology of both events by addressing the divestment-follows-investment as well as the investment-follows-divestment relationship. In extension to Berry (2010) we argue that investment can also follow after divestment so that the investment-divestment relationship is far from being unidimensional. Third, we test the moderating role of country-specific differences in the investment-divestment relationship by differentiating between industrialized and developing countries. Building on empirical findings of Konings and Murphy (2006) we argue that intersubsidiary competition within a bloc of similar countries (industrialized or developing countries) is driven by other motives than intersubsidiary competition across blocks of similar countries.

In sum, there are calls to examine MNEs' investments and divestments as a series of interconnected moves (e.g., Belderbos & Zou, 2007; Berry, 2010; Nachum & Song, 2011, Song 2014). We address this knowledge void and derive five main hypotheses, which are tested by a static random effect probit model on a sample of French MNEs. In line with Berry (2010) we also test the robustness of findings by distinguishing between low-tech and high-tech industries.

2. Theoretical background and hypotheses

The international business literature has evolved from the traditional approaches that view the internationalization decisions of MNEs as being discrete, independent and static (e.g., Head, Ries, & Swanson, 1995), towards evolutionary and portfolio approaches that view MNE decisions as being continuous, interdependent and dynamic (e.g., Benito & Welch, 1997; Johanson & Vahlne, 1977; Nachum & Song, 2011; Song, 2002). The multinational flexibility literature points out that MNEs respond to market opportunities and cost arguments by resource shifts across their affiliates in different countries (e.g. Allan & Pantzalis, 1996; Fisch & Zschoche, 2012; Kogut & Kulatilaka, 1994), which allows them to secure their competitive advantage and to maximize their overall efficiency. In contrast

to domestic firms, MNEs operate a global network of subsidiaries, which provides higher flexibility and capabilities to shift resources (Belderbos & Zou, 2007, and 2009; Chung, Lee, Beamish, & Isobe, 2010; Kogut, 1985; Song, 2014). Song (2002, p.193) noted, "For a multinational corporation, exiting is more likely to take the form of switching from one country to another", so that divestment and investment decisions are likely to be linked.

With respect to the global value chain framework (e.g., Gereffi, Humphrey & Sturgeon, 2005), business functions are decomposable and subsidiaries become more specialized to provide specific functions. The decomposition of business functions may lead to increased offshoring. Within an MNE network some subsidiaries might gain from a functional upgrading, also known as 'charter extension', and other subsidiaries might loose some of their former functions (Birkinshaw, 1996; Birkinshaw, & Lingblad, 2005). Overall, resource shifts can range from an intersubsidiary relocation in functions, assets, employees and operations within the current subsidiary network towards the investment of new subsidiaries and the divestment of existing subsidiaries.

Subsidiaries can be understood as semi-autonomous entities within the MNE (e.g., Birkinshaw, Hood, & Young, 2005; Cantwell, Dunning, & Lundan, 2010; Rugman, Verbeke, & Yuan, 2011), which face and respond to an external and internal environment (Bartlett & Ghoshal, 1998; Prahalad & Doz, 1987). The external environment consists of customers, suppliers and competitors in the local market. The internal environment consists of intrafirm customers, supplier and competitors. A subsidiary becomes an internal customer (supplier) if it buys (sells) intermediate products or services from (to) other subsidiaries of the same MNE. The intersubsidiary relationship within an MNE is characterized to a varying extent by both cooperation and competition (e.g., Birkinshaw et al., 2005; Maurer, 2011)[1]. Birkinshaw et al. (2005, p.246) concludes that "The relationships between subsidiaries and their sister plants in other countries, for example, are a fascinating blend, in that they rely on one another for transferring ideas and ways of working, but ultimately they are in competition for new investment or even (in some cases) for survival." Birkinshaw and colleagues refer to these environments as 'competitive arenas' because subsidiaries "fight to establish and defend advantageous positions, and ultimately secure competitive advantage" (Birkinshaw et al., 2005, p.228; Birkinshaw, 2000; Young, Hood, & Peters, 1994), which in turn give rise to an

[1] *Competition* and *cooperation* are only the two most fundamental forms of (intrafirm) relationships. Intermediate forms also comprise *coopetition* and *independence*, which imply the combination and the absence of competition and cooperation, respectively (see e.g. Maurer, 2011).

intersubsidiary competition. For example, the opening of Central and Eastern European markets has triggered a surge of new foreign-owned subsidiaries by western MNEs (Konings & Murphy, 2006), sometimes even going along with the closure of subsidiaries elsewhere.

The headquarters (HQ) induces part of the intersubsidiary competitive pressure. In particular, the relationship between the HQ and its subsidiary can be characterized as follows: First, the HQ decentralizes activities and grants subsidiaries autonomy to respond to local market conditions. However, the HQ also designs and decides on the corporate global strategy, structure and processes to guarantee an optimal (re)allocation of resources (Ghertmann, 1988). As a consequence, the optimal resource allocation of the HQ might by suboptimal for a particular subsidiary. Second, the HQ-subsidiary relationship can trigger the principal-agent problem whereby the HQ (principal) has to realign the (conflicting) interests of its agents (subsidiaries) in order to maximize the company's overall efficiency and profitability. Third, the HQ functions as an internal capital market where earnings from the subsidiaries flow to the HQ, which in turn are partly redistributed within the corporate network (Birkinshaw, 2000; Haynes, Thompson, & Wright, 2002; Williamson, 1975). Finally, if subsidiaries have an overlap in operations, they become sub-additive and partly substitutable (or redundant) to the corporate portfolio (Belderbos & Zou, 2009). In sum, the HQ-subsidiary relationship evokes intersubsidiary competition for corporate resources, information and support so that subsidiaries can defend their position with the MNE network (Lou, 2005).

From the subsidiary perspective it raises the question to what extent a subsidiary suffers or benefits from investment or divestment activities at another location within the MNE network. The internationalization literature has identified a multitude of factors that determine the investment and divestment decision of firms (e.g., Blonigen, 2005, for investment; Brauer, 2006; Lee & Madhavan, 2010, for divestment) However, much less is known on the sequential nature in internationalization decisions and the effect of past moves on future foreign direct investment (FDI) decision (e.g., Belderbos & Zou, 2007; Berry, 2010, Nachum & Song, 2011). In the following three sub-sections we will set forth arguments how MNEs investment and divestment decisions could be linked.

2.1 Divestment-follows-investment

Well-known drivers for divestment are poor performance (Duhaime & Grant, 1984, Hamilton & Chow, 1993) and better investment opportunities elsewhere (e.g., Berry,

2010; Mata & Freitas, 2012). For the HQ it is not the absolute attractiveness of a single market or location that matters but the relative attractiveness with respect to all other markets (e.g. Benito & Welch, 1997). If new market opportunities and growth prospects arise, firms might be inclined to shift resources from one subsidiary to another (new) subsidiary. Similarly, lower cost production opportunities can increase the efficient usage of corporate resources, so that current subsidiaries are closed and production is offshored or outsourced to these lower-cost locations. In sum, market-, resource- and efficiency-seeking motives have the potential to spur relocation of resources via investment and divestment. Berry (2010) showed in her pioneer work that divestment decisions of domestic units are significantly affected by investment decisions abroad, thus we postulate:

> *H1a: MNEs are more likely to divest home-country subsidiaries after they invested in new subsidiaries abroad.*

Of course, the domestic divestment-follows-investment abroad relationship is not limited to this specific case of cross-border linkage. Domestic subsidiaries compete with all subsidiaries. The forces behind the competition, however, might be different. New investments often employ modern machinery and equipment as well as more efficient technologies, production processes and services, thereby potentially threating operations of existing subsidiaries. Furthermore, the decomposition of business functions to increase the overall productivity accelerates resource shifts, which are independent from differences in wage and trade costs as well as market opportunities. Any investment enlarges the subsidiary network and increases the overall capacity for the MNE, increasing at the same time the risk of redundancies within the subsidiary network and hence, the likelihood of subsequent divestments (Belderbos & Zou, 2009; Haynes et al., 2003).

Against this, Boddewyn (1983) argued that foreign and domestic divestments are not alike: Home barriers to exit are higher than foreign barriers to exit. The emotional involvement for HQ managers is larger and the physical distance is lower with respect to domestic operations. Additionally, it is difficult to obtain acceptance and justification for domestic divestments by the general public and politicians at home, who stress the historical routes and social responsibility of the MNE. Hence, an MNE that downsizes and divests domestic operations risks naming and shaming by domestic employees, trade unions and the wider public, which can be very harmful for the image of the MNE (e.g.

Benito & Welch, 1997). If an MNE, nevertheless, decides to divest home operations, it is likely to face severe financial difficulties and performance deterioration, making subsequent domestic investments less likely. Hence, we expect:

H1b: MNEs decision to divest home-country subsidiaries is not affect after they invested in new subsidiaries at home.

The argumentation set forth for hypothesis H1a can also be applied in the foreign arena. More specifically, the continuous rise in labour costs in India and China in recent years has led MNEs to shift some production from those countries to other lower-cost locations in South-East Asian countries like Vietnam or Indonesia (The Economist 2013, 2015). Thus, MNEs switch between foreign locations to benefit from cost advantages and new market opportunities. Barriers to exit foreign markets are lower than for the domestic market. Boddewyn (1983) argues "'core' home-country investment is usually considered worthier than any foreign one" (p. 30). A prominent explanation is that HQ managers are more attached to domestic than to foreign subsidiaries due to the higher emotional and cultural ties and the lower physical distance. This, however, increases the likelihood that foreign subsidiaries are more readily regarded as substitutes. Moreover, it also intensifies the intersubsidiary competition between foreign subsidiaries for HQ attention and resources. Consequently, the threat for a foreign subsidiary to be divested increases with every new subsidiary being established in the home country. Moreover, the re-shoring of operations back home makes a reduction in foreign capacities more likely (e.g., Ellram, Tate, & Petersen, 2013; Fratocchi et al., 2014). Thus, we hypothesize that foreign subsidiaries are threatened by new investments abroad and at home:

H2a: MNEs are more likely to divest foreign-country subsidiaries after they invested in new subsidiaries abroad.

H2b: MNEs are more likely to divest foreign-country subsidiaries after they invested in new subsidiaries at home.

2.2 Investment-follows-divestment

An interesting aspect of the investment-divestment relationship is the chronology of both decisions, which so far has not received explicit research attention. It has been argued that firms first invest and then divest, once the new site is fully operational (Berry, 2010). This implies a certain overlap in operations during which two subsidiaries with similar capabilities are active. Given the large costs involved in operating two subsidiaries instead of one, firms aim to minimize the overlap time und duplication of resources. For firms with low financial strength, however, the duplication of resources might not be a viable option. In particular, liquidity constraints have been shown to hamper foreign market entry and new investments (Chaney, 2005; Stiebale, 2011). Hence, another option would be to first divest an incumbent subsidiary before establishing new production capabilities and facilities.

A divestment can be value enhancing as the MNE might have more promising ventures in which the proceeds from the divested subsidiary can be re-invested. The consolidation of existing resources strengthens the balance sheet, reduces over-diversification and negative synergies, and frees capital for new investments (Buckley, 1991; Hamilton & Chow, 1993). Moreover, a divestment helps to optimize firm performance by addressing potential agency issues in the HQ-subsidiary relationship (e.g., Bergh & Sharp, 2015; Lee & Madhavan, 2010). If, however, firms opt for a divestment before investing again, they need to temporarily bridge an operational gap and guarantee a continuous supply until the new subsidiary is established e.g. by advanced stockpiling, toll manufacturing or producing temporarily at other existing sites.

The above arguments do not suggest any optimal ordering for investment and divestment, they merely illustrate that the ordering is far from being unidimensional. Thus, we should not only investigate the effect that investment has on divestment (i.e. divestment-follows-investment relationship), but also whether and how divestment affects subsequent investment (i.e. investment-follows-divestment relationship). By addressing the latter linkage we shed light on the opportunities for the domestic and foreign arena to attract investments if divestments have occurred.

A new phenomenon in recent years has been the transfer of foreign operations of MNEs back home (Casson, 2013; Ellram et al., 2013; Fratocchi et al., 2014; The Economist 2013, and 2015), which can go along with the partial or full divestment of operations in the respective host country. MNEs have started to evaluate the ‘total cost, profitability and customer value creation’ instead of looking at ‘costs in isolation’ (Ellram et al.,

2013). In addition, MNEs have considered re-shoring due to the erosion of labour cost advantages abroad, quality issues and lack of flexibility at the host location (e.g., Baldassarre & Campo, 2015; Kinkel, 2014; Zanker, Kinkel, & Maloca, 2013). From the viewpoint of the subsidiaries at home, re-shoring is good news because operations in existing domestic sites might be expanded or new domestic subsidiaries are to be established. Thus, we hypothesize that divestments abroad open up investment opportunities at home:

H3a: MNEs are more likely to invest in home-country subsidiaries after they divested subsidiaries abroad.

We reasoned above that domestic divestments are not linked with any other investment activity at home. Consequently we hypothesize that:

H3b: MNEs decision to invest in home-country subsidiaries is not affected after they divested subsidiaries at home.

Turning now to the final path of the investment-follows-divestment relationship, we analyse to what extent investments abroad are affected by both previous divestments abroad and at home. Shifts in global market demand and cost advantages require MNEs to efficiently reallocate resources worldwide. For example, growing demand of customers in new foreign locations and slowing demand in other foreign locations might make a shift in resources necessary to better respond to local market opportunities. Moreover, shifts in labour costs can change the relative attractiveness of locations (Fisch & Zschoche, 2012). MNEs adapt their network of foreign subsidiaries to benefit from relative cost advantages. Hence, following Song (2002) who suggests that market exits by MNEs are likely to take the form of switching between countries, we expect that foreign divestment activities can trigger subsequent new investments abroad.

For large MNEs the percentage of sales generated in the home country has been steadily falling due to global market opportunities. French MNEs like Accor and L'Oréal generated 60-80% of their revenues outside France in 2014. Consequently, the scale and scope of the foreign network of subsidiaries is adapted to reflect the importance of foreign markets. The overall dependence on the home market has diminished for many MNEs, so that MNEs have increasingly engaged in offshoring to better serve foreign growth markets. Apart from cost-cutting motives, MNEs nowadays also offshore more value-added activities, which provide MNEs with greater flexibility and enables them to

tap into knowledge resources unavailable at home (e.g., Kenney, Massini, & Murtha, 2009; Levy, 2005; Lewin, Massini, & Peeters, 2009). In sum and based on the growing importance of foreign markets for MNEs, we hypothesize that investments abroad are positively affected by both previous divestments abroad and at home:

H4a: MNEs are more likely to invest in foreign-country subsidiaries after they divested subsidiaries abroad.

H4b: MNEs are more likely to invest in foreign-country subsidiaries after they divested subsidiaries at home.

2.3 Heterogeneity of the foreign arena

Industrialized countries like France, the US or Germany can differ remarkably from developing countries like China or India in terms of factor endowment, factor prices, market potential and market growth. Consequently, countries differ in their attractiveness as a destination for market-, resource-, or efficiency-seeking FDI. It is a stylized fact that FDI has been mainly driven by market-seeking motives in order to get access to large and growing markets (e.g., UNCTAD, 2012). Most fast growing developing countries are located outside of Europe (e.g., China, India) and thus, are far away for firms from Western Europe. It can be advantageous to serve markets in fast growing developing countries by foreign affiliates rather than by export from home (Brainard, 1997). In recent years, however, relocations between countries have become more prominent for internationalized firms (e.g., Zanker et al., 2013), including the re-shoring of activities back home as well as the relocation to other countries. In the latter case labour cost have been a main driver. For example, in a German manufacturing survey on relocation of production units in 2012 (see Zanker et al., 2013), 71% of all firms name labour cost as primary reason for relocation. Thus, especially (low-wage) developing countries are in competition to attract new and (to be) relocated production processes.

Empirical evidence suggests that intersubsidiary competition matters most within a bloc of similar countries. For a sample of Western European MNEs, Konings and Murphy (2006) find that "… a reduction of say 10 percent in affiliate wages located in the North EU is associated with a reduction in home (parent) employment of 0.18 percent on average" (p. 277). One possible explanation is that resource endowment is very similar across locations in Western and Northern Europe, which might imply lower barriers to relocate the (capital-intensive) business functions in order to serve the European market.

The proximity between high-wage countries in Europe accelerates the decomposition of business functions to a greater extent than outside of Europe. Defever (2006) showed that several service functions (i.e., logistics) are attracted by the production location. And Birkinshaw et al. (2005, p. 242) reported some evidence for a rationalisation of production enhancing the overall efficiency of value added activities of MNEs' affiliates in Western Europe. In contrast, Konings and Murphy (2006) do not detect any statistically significant substitution effect between the Western parent and their Central and Eastern European (CEE) subsidiaries. CEE countries are close to high-wage EU countries and thus, the cost savings based on lower wage costs and lower trade costs might be comparatively low.

Overall, the above findings indicate that the investment-divestment relationship might be more pronounced within a bloc of countries with similar factor endowments rather than across blocs of countries with different factor endowments.

H5a: Subsidiary divestments are more positively associated with investments in similar bloc countries compared to investments in other bloc countries.

H5b: Subsidiary investments are more positively associated with divestments in similar bloc countries compared to divestments in other bloc countries.

3. Data and empirical method

3.1 Sample

We constructed a unique panel data set for French firms from the pan-European AMADEUS financial database, provided by Bureau van Dijk. The AMADEUS database has been frequently used to analyse firm internationalization decisions (e.g. Altomonte & Pennings, 2009; Engel, Procher, & Schmidt, 2013; Javorcik & Spatareanu, 2008; Konings & Murphy, 2006) While AMADEUS provides detailed financial accounting information for up to ten years, information on the current ownership and subsidiary structure are limited to the current period. Hence, we merged several AMADEUS data updates in order to construct a history of the company network structure for the years 2002, 2004, 2005, 2007 and 2010. The (unbalanced) panel allows us to follow up on investments and divestments within the MNE's subsidiary network. The time span between entries and exits ranges between one and three years. With respect to recent evidence of Yukiko

(2015)[2] we assume that the time span is sufficient to address the bidirectional investment-divestment relationship.

The analysis focuses on firms in manufacturing and service industries, excluding the financial sector. Observations with missing values in variables used in this study were deleted from the sample. A few observations had negative values in variables with ex-ante positive values (e.g., productivity, export sales) and therefore, these observations were also dropped. Further, the upper and lower 1%-quantile of all monetary variables was deleted from the sample to eliminate coding errors and extraordinary firm shocks. After the data cleaning process 7,952 firm-year observations for a sample of 3,524 MNEs are left for the analysis. For a subsample of 1,498 MNEs three or more observations are available.

3.2 Descriptive statistics

The main variables of interest are investment and divestment moves at home and abroad. Following scholars like Berry (2010) and Nachum and Song (2011), in this paper investment refers to investment in a new subsidiary and divestment implies the closure or sell-off of an existing subsidiary. We do not account for any incremental investment flows that expand or reduce the size of existing subsidiaries. At first we calculate the number of subsidiaries[3] in each country of the world for each of the five time periods and then compare the number of subsidiaries in two consecutive periods. MNEs with a reduction (enlargement) in the number of foreign subsidiaries in at least one foreign country are counted as firms with foreign divestment (investment). A domestic divestment (investment) pattern is defined as a negative (positive) net change in the number of domestic subsidiaries.

The exact timing of investment and divestment within a given year is not known. However, we consider the potential bias to be small and negligible, as all independent variables are lagged by one period (i.e. about 2 years) to ensure a time differential in the investment and divestment decisions.

---

[2] Yukiko (2015) showed for a sample of Japanese MNEs that 52.1 per cent of affiliates' entries and exits occurred within less than two years interval.

[3] According to the OECD (2008) foreign investment is defined as being direct if a non-resident investor holds 10% or more of the equity of a resident enterprise.

Table 1 provides an overview on changes in the global subsidiary network of French MNEs. 58% of all MNEs (= [7,952-3,372] / 7,952) restructure their domestic or foreign subsidiary network between two periods, illustrating the significant scale of global resource shifts. MNEs that are engaged in resource shifts focus mainly on shifts in the foreign subsidiary arena (26.6%), whereas a minority (13.1%) tackles only the domestic arena. A significant number of MNEs operates in both arenas simultaneously (17.8%).

< insert Table 1 around here >

Tables 2 to 5 provide the transition probabilities for investment and divestment in the domestic and foreign arena between two consecutive periods in time. Starting with shifts within the foreign arena (Table 2), one fourth of MNEs with foreign investments in the current period divest in the subsequent period. The share is slightly larger (29.9%) for the opposite case, namely future investment follows current divestment. Both findings illustrate a significant bidirectional linkage between investment and divestment across subsequent time periods. Thus, our descriptive statistics support both, the divestment-follows-investment and the investment-follows-divestment relationship.

< insert Table 2 around here >

Overall a similar pattern within the domestic arena is being confirmed (Table 3)[4]. Again, the table depicts a high transition between current investment and future divestment (35.8%) (i.e. divestment-follows-investment). In contrast to the foreign arena, the reverse relationship (i.e. investment-follows-divestment) is observable to a much lower extent in the domestic arena (19.2%).

< insert Table 3 around here >

Table 4 and Table 5 address the cross-correlation between the domestic and the foreign arena. In fact, the transition rates between investment and divestment across both arenas are much lower compared to the findings of both arenas in isolation (Tables 2 and 3). Across both arenas, we observe that MNEs engage more often in a divestment-follow-investment strategy than an investment-follow-divestment strategy. In sum, we conclude from the descriptive statistics that investment and divestment are far from being rare

[4] Please note, that the mode "INV & DIV" in the foreign arena has no corresponding mode in the domestic arena because within a single country the number of subsidiaries either increases or decreases.

events. The transition between both events is bidirectional, supporting a divestment-follow-investment relationship as well as an investment-follow-divestment relationship. Furthermore, the extent of these relationships is greatest within the domestic and foreign arena, respectively.

< insert Table 4 around here >

< insert Table 5 around here >

3.3 Control variables

We consider a broad set of covariates at the group level to control for factors influencing the relocation of resources. Table 6 provides the summary statistics and definition of variables and Table 7 depicts the correlation matrices, which shows no significant correlation between the covariates. The *number of subsidiaries* measures the size of the MNE subsidiary network. A larger network increases the HQ options to shift resources and increases intersubsidiary competition for those resources. The *share of foreign subsidiaries* approximates the relative size and importance of the foreign arena for the MNE. In our sample MNEs have on average 1.4 subsidiaries at home and 3.6 subsidiaries abroad.

Shareholders have been shown to affect MNEs investment and divestment decisions (e.g. Bergh & Sharp 2015, Bernard & Jensen 2007, Engel et al. 2013, Engel & Stiebale 2014, Nguyen, Rahman, & Zhao 2013). Four dummy variables are deployed to control for the ownership structure. The majority of studies point out that high level of internal ownership correlates with lower level of firm risk (e.g. Zajac & Westphal 1994), which might lower the scale and scope of internationalization (e.g., George, Wiklund, & Zahra, 2005). In contrast, the effect *corporate*, *financial* and *foreign shareholders* can have on the internationalization of firms is ambiguous. On the one hand, firms might profit from the financial resources as well as the supplier and consumer network of those shareholder. On the other hand, financial investors, in particular, are mainly interested in fast and high returns on investments (Amess & Wright, 2012; Cao & Lerner, 2009), which might be hampered by (long-term) investments in foreign affiliates.

We further consider firm's size, measured through *operating revenue*, and *firm age*. Apart form the subsidiary network MNEs, international embeddedness is also reflected in the *export share* (e.g., Johanson & Vahlne, 1977). The group's performance is approximated by *labour productivity*. The *cash-flow ratio* is included to capture financial constraints.

The *R&D* dummy approximates the MNE innovativeness and takes the value one if a firm reports intangible assets and zero otherwise. Finally we include industry dummies (high-tech manufacturing, low-tech manufacturing, high-tech services and other services) and year dummies to control for industry and time-specific shocks.

3.4 Method

We apply a panel data approach to control for individual heterogeneity. If individual heterogeneity is present but not controlled for, the coefficients of the observed characteristics are biased if both are correlated. We then derive the following empirical model:

$$DIV_{it} = \begin{cases} 1 & if \delta INV_{it-1} + x'_{it-1}\beta + TIME_i + a_i + \varepsilon_{it} > 0 \\ 0 \end{cases}$$

$$INV_{it} = \begin{cases} 1 & if \delta DIV_{it-1} + x'_{it-1}\beta + TIME_i + a_i + \varepsilon_{it} > 0 \\ 0 \end{cases}$$

In this model DIV_{it} (INV_{it}) are the observed outcome of divestment (investment), INV_{it-1} (DIV_{it-1}) are the previous (realised) experience to invest (divest), vector $x_{i,t-1}$ contains observable internal forces (e.g., subsidiary network, ownership) and other covariates, vector $TIME_i$ consists of a vector of time dummies to capture macroeconomic effects, a_i is the unobserved time-invariant firm heterogeneity ,which is assumed to be constant over time, ε_{it} is an idiosyncratic error that is assumed to be normally distributed and uncorrelated with the regressors in the vector $x_{i,t-1}$ and in the vector $TIME_i$. The empirical model is estimated by using a static random effects (RE) probit estimator. This method assumes the endogenous variable to be conditionally independent given a_i. This restriction is not necessary in fixed effect models. Fixed effects models, however suffer from computational difficulties and inconsistent parameter estimates caused by a small number of observations per unit (see e.g., Honoré & Kyriazidou, 2000; Greene, 2004). Given that we have only two observations on average for each unit, a random effects probit model seems to be more appropriate.

4. Results

Table 8 provides an overview of all hypotheses and the empirical results. Going into more detail, the results of the static RE probit model are shown in Table 9. In columns (1) and (2) we address the divestment-follows-investment relationship. Controlling for the size of subsidiary network and many other factors, the propensity to divest a domestic subsidiary

increases by 1.9 per cent when the firm invested abroad before. We find empirical support for hypothesis 1a. The impact, however, is rather low given that the mean propensity to divest is 20.6 per cent (=1,427/6,918). We find a positive but statistically not significant effect of past domestic investments on future domestic investments, which confirms hypothesis 1b. The pattern is quite different for divestments in the foreign arena (column (2)). Neither foreign investments nor domestic investments increase the propensity to divest abroad. Hence we do not find evidence supporting hypotheses 2a and 2b.

Changing the order of events, the results for the investment-follows-divestment relationship are depicted in columns (3) and (4). Prior foreign divestments decrease the propensity to invest at home in the subsequent period, but the result is not statistically significant. We fail to support hypothesis 3a and thus, the domestic arena does not gain from divestments abroad. In contrast, the propensity to invest at home increases significantly by 5.5 per cent when a foreign divestment has been carried out before. The impact is comparatively high given an average propensity for domestic investment of 15.8 per cent (=1,034/6,525). Thus, we fail to confirm hypothesis 3b, because investments and divestment are linked in the domestic arena. Turning to investment abroad (column (4)), the propensity for investments in the foreign arena is significantly increased by both divestments abroad and divestments in the domestic arena, lending support for hypotheses 4a and 4b. We further detect for the investment-follows-divestment relationship that the estimated coefficients are three times larger within the foreign arena (β_{divest_abroad}=0.158) than within the domestic arena ($\beta_{divest\_domestic}$=0.055). Moreover, the estimated effects across both arenas are much weaker than within both arenas, indicating that intersubsidiary competition seems to be higher within than across arenas.

< insert Table 9 around here >

In the following we differentiate between industrialized-country locations and developing-country locations to uncover differences within the foreign arena. We further pick up the basic idea that the investment-divestment relationship might differ by industry. Firms in low-tech industries are typically characterized by mass products and thus, more confronted with cost pressure than firms in high-tech industries with high-quality products. We follow Berry (2010) and differentiate between high-tech and low-tech industries.

Table 10 depicts the results for *subsidiary investment/divestment of French firms in the domestic arena*. Columns (5) to (7) present findings for the divestment-follows-investment relationship and columns (8) to (10) show the coefficient estimates for the investment-follows-divestment relationship. Indeed, the propensity to divest at home increases for investments in industrialized as well as developing countries to a similar extent (column (5)). The significant effect is limited, however, for firms in low-tech industries (column (7)). The propensity to divest a domestic subsidiary increases by about 2.7 per cent. In contrast, the effect differs not significantly from zero for firms in high-tech industries (column (6)). The results clearly indicate that domestic subsidiaries of low-tech firms are more likely to be confronted with internal competitive pressure. The findings for the investment-follows-divestment relationship are mixed (columns (8) to (10)). The home country profits from divestments in developing countries only if the investment has been carried out by firms in high-tech industries (column (9)). Given an average propensity to invest at home of 12.7 per cent, the marginal effect of 9.4 per cent is rather large. Divestments of firms in low-tech industries clearly reduce the propensity to invest at home (column (10)). The results confirm the view that firms in high-tech industries are more likely to keep business functions in-house i.e. nearby the headquarters.

< insert Table 10 about here >

The findings for *subsidiary investment/divestment of French firms in industrialized countries* are provided in Table 11. Foreign investments in industrialized countries significantly increase the propensity to divest other foreign subsidiaries in industrialized countries (column (11)). This effect is stronger for firms in low-tech than in high-tech industries (columns (12) and (13)). Interestingly, for the domestic arena we did not observe that latter effect. And the marginal effect is larger compared to the domestic arena (see Table 10). Furthermore, a subsidiary investment in developing-country locations decreases the propensity to divest in industrialized-country locations. Turning to the investment-follows-divestment relationship (columns (14) to (16)), our empirical results confirm the view of a greater sensitivity for subsidiaries in the foreign arena. The propensity to invest increases by 16.9 per cent (average propensity: 22.8 per cent) if French firms divested at least one subsidiary in another industrialized country one period before (column (14)). For comparison, the propensity to establish a new domestic subsidiary was negatively influenced due to prior divestments abroad. We fairly conclude

that French MNEs' foreign subsidiaries in industrialized countries are more likely to be affected by intersubsidiary competition than domestic subsidiaries.

< insert Table 11 about here >

Table 12 shows the results for *subsidiary investment/divestment of French firms in developing countries*. Again we detect a greater sensitivity compared to the domestic arena. Firms with newly established subsidiaries at developing-country locations have a higher propensity to divest subsidiaries at (other) developing-country locations in the next period (columns (17) to (19)). Subsidiary investments in industrialized-country locations as well as in the domestic arena decrease the propensity to divest at developing-country locations. Developing-country locations further gain from divestment at any other location (column (20)). In fact, investment and divestment decisions in developing-country locations are more sensitive against subsidiary investment/divestment elsewhere and these locations profit to greater a extent from intersubsidiary competition. In sum, our findings lend support for hypotheses 5a and 5b.

< insert Table 12 around here >

5. Discussion and concluding remarks

Based on a sample of 3,524 French MNEs with domestic and foreign subsidiaries we analyse MNEs investment and divestment decisions between 2002 and 2010. This study responds to calls to view divestment as a meaningful corporate strategy being part of firm's internationalization strategy (e.g., Benito & Welch 1997; Boddewyn, 1983; Fletcher, 2001; Berry, 2010; Wan, et al., 2015). Investments and divestments are not necessarily independent, static and separate corporate decisions but rather part of a global strategy. Berry (2010) was one of the first to explicitly investigate the effect foreign investments have on home divestments. In line with Berry (2010) we find that investments in developing countries increase the likelihood of subsequent divestments at home in low-tech industries only. In contrast to her study our finding also holds for investments in industrialized countries. This strengthens the view that relocation is not necessarily driven by large differentials in labour cost and trade cost. Going beyond Berry's findings, we investigate the generalizability of the divestment-follows-investment relationship by systematically reviewing whether investments at home or abroad affect divestment at home or abroad in subsequent periods. We indeed find that domestic subsidiaries are most threatened by new foreign investments, which might reflect that

foreign locations become more important, either due to their market attractiveness or cost reduction potential, while MNEs domestic dependency is reduced.

It seems obvious that firms will optimize the use of their firm resources across time and space, but the interconnectedness and the timing of decisions has not yet received much research attention. Even though the establishment of new production sites and markets can make existing sites obsolete, as reflected in a divestment-follows-investment strategy, there is no rule that the timing of events is restricted to this order. Considering the reverse ordering of both events, i.e. an investment-follows-divestment relationship, we make a first attempt to address the opportunities of divestments within the subsidiary network of MNEs for the domestic and foreign arena. In fact, in our data we find widespread and strong support for the investment-follows-divestment relationship, both across and within the domestic and foreign arena. Divestments can be followed by investments. Prior divestments allow firms to consolidate and streamline their activities before investing again. Especially, financially constrained firms that want to reallocate resources might have not the option to follow a divestment-follows-investment strategy as this would imply a temporal overlap of resources and high financial commitment due to establishing a new subsidiary while still running a to be divested subsidiary. Thus, our research demonstrates that the investment-divestment relationship is fare from being unidimensional with no dominant ordering between investment and divestment decisions.

Subsidiaries are part of larger corporate network, which results in an intersubsidiary competition for resources, contracts and business functions (Birkinshaw et al., 2005; Maurer, 2011). Our empirical analysis gives a comprehensive overview on the intersubsidiary competition that persists within and across the domestic and foreign arena. We found that affiliates are confronted with different levels of intersubsidiary competition. The linkage between investment and divestment decisions is larger within the bloc of industrialized and developing countries, respectively, than across these blocs. Thus, affiliates in industrialized countries compete more against affiliates in industrialized countries than against those in developing countries. Further studies should stress the motives behind the different levels of intersubsidiary competition in more detail.

From a managerial perspective firms should be aware that divestment and investment decision are not solely based on manager's rational choice. HQ manager's emotional attachment and cultural ties can influence business decisions (Boddewyn, 1983) in such a

way that local subsidiaries might receive preferential treatment. For example, domestic divestment decisions are delayed while foreign subsidiaries are more readily divested. Expatriates that are sent from the HQ to a foreign location for a temporary assignment could play a central role in these situations. Expatriates are usually familiar the demands and expectations of both the HQ and foreign subsidiary, so that they might able to better align competing interests. Hence, future research could analyze the moderating role of expatriates in the divestment-investment relationship.

We also would like to acknowledge some potential limitations of our study. First, in this study we have assumed that subsidiaries are in competition with each other. This is a rather simplifying assumption given that subsidiaries can also cooperate. We would need more information about the strategic orientation of the MNE as well as the business function of the affiliate (Defever, 2006) to fully capture the structural configuration and coordination between subsidiaries (Chandler, 1962; Bartlett & Ghoshal, 1998; Duhaime & Grant, 1984). However, even in the absence of this knowledge, subsidiaries of MNEs are expected to enjoy a high degree of flexibility and independence to optimize their operations in the local market. They follow their own strategic objectives and strive for autonomy (Bartlett & Ghoshal 1998). Moreover, duplicating key assets and operations within the MNE network further facilitate competitive pressures. Overall this implies that intersubsidiary relationships in MNEs are rather governed by competition than cooperation (Bartlett & Ghosal, 1998; Birkinshaw et al., 2005; Birkinshaw & Lingblad, 2005).

Second, the data allows us to map the worldwide network of subsidiaries and network changes over the years (i.e. enlargement or reduction in subsidiaries), but comprehensive information on the subsidiary level is very limited, making a precise tracking of each subsidiary nearly impossible. For this reason we focus on HQ level information only, which is an accepted procedure in this research area (e.g., Berry, 2010) and is in line with the view that decision-making is mainly made at the HQ level (Ghertman, 1988). Future research could consider the financial information at both the subsidiary and HQ level to better account for performance trajectories and differences. The MNE-subsidiary relationship addresses effects on different levels and thus, multilevel models are suggested. Peterson and colleagues (2012) discussed the opportunities of these models to improve the precision of estimates as well as to improve the conceptual possibilities. Song (2014) pointed out that subsidiary divestment decisions are affected by both subsidiary-level factors and network-level factors.

Third, we miss some detailed information about the management of firms in our database. The chances and risk of intersubsidiary competition might be moderated by the network position of the management as well as the emotional attachment of executives to the units under consideration (Boddewyn, 1983). For example, Shimizu (2007) showed that the propensity of divestment was higher for firms when a new CEO had entered the board. Finally, we are not able to differentiate between the various investment and divestment modes (e.g. greenfield, M&A, joint venture, spin-off, split-up, carve-out), even though the foreign entry mode can affect the performance and survival of foreign subsidiaries. For example, Li (2005) showed that the exit rate is higher for subsidiaries that have been established though M&A and joint ventures than through greenfield investments. Future research could analyse whether the investment-divestment relationship is moderated by the specific investment and divestment mode.

References

Allan, L., & Pantzalis, C. (1996). Valuation of the Operating Flexibility of Multinational Corporations. Journal of International Business Studies, 27 (4): 633-653.

Altomonte, C., & Pennings, E. (2009). Domestic plant productivity and incremental spillovers from foreign direct investment. *Journal of International Business Studies*, 40, 1131-1148.

AMADEUS database, release 202, 168, 146, 136 & 113. Bureau van Dijk Electronic Publishing (BvDEP). www.amadeus.bvdep.com.

Amess, K., & Wright, M. (2012). Leveraged buyouts, private equity and jobs. *Small Business Economics*, 38, 419-430.

Baldassarre, F., & Campo, R. (2015). Assessing the global dimension of sourcing: An explanatory study of Italian companies. *Journal of Supply Chain Management*, 4 (3): 15-24.

Bartlett, C., & Ghoshal, S. (1998). *Managing Across Borders: The Transnational Solution*. (Vol. 2). Boston, MA: Harvard Business School Press.

Belderbos, R., & Zou, J. (2007). On the growth of foreign affiliates: Multinational plant networks, joint ventures, and flexibility. *Journal of International Business Studies*, 38(7): 1095-1112.

Belderbos, R., & Zou, J. (2009). Real Options and Foreign Affiliate Divestments: A Portfolio Perspective. Journal of International *Business Studies*, 40(4): 600-620.

Benito, G., & Welch, L. (1997). De-Internationlization. *Management International Review*, 37: 7-25.

Bergh, D., & Sharp, B. (2015). How far do owners reach in to the divestiture process? Blockholders and the choice between spin-off and sell-off. *Journal of Management,* 41 (4): 1155-1183.

Bernard, A. B., & Jensen, J. B. (2007). Firm structure, multinationals, and manufacturing plant deaths. *Review of Economics and Statistics*, 89, 1-11.

Berry, H. (2010). Why do firms divest? *Organization Science*, 21(2): 380-396.

Berry, H. (2013). When do firms divest foreign operations? *Organization Science*, 24(2): 246-261.

Birkinshaw, J. (1996). How multinational subsidiary mandates are gained and lost. *Journal of International Business Studies*, 27(3): 467-495.

Birkinshaw, J. (2000). *Entrepreneurship in the global firm: Enterprise and renewal*. London, UK: Sage.

Birkinshaw, J., & Lingblad, M. (2005). Intrafirm Competition and Charter Evolution in the Multibusiness firm. *Organization Science*, 16(6): 674-686.

Birkinshaw, J., Hood, N., & Young, S. (2005). Subsidiary entrepreneurship, internal and external forces, and subsidiary performance. *International Business Review*, 14, 227-248.

Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal*, 33(4): 283-403.

Boddewyn, J. J. (1983). Foreign and domestic divestment and investment decisions: like or unlike? *Journal of International Business Studies*, 14, 23-35.

Brauer, M. (2006). What have we acquired and what should we acquire in divestiture research? A review and research agenda. *Journal of Management*, 32, 751-785.

Brainard, S. L. (1997). An empirical assessment of the proximity-concentration trade-off between multinational sales and trade. *American Economic Review*, 87, 520-544.

Buckley, F. H. (1991). The divestiture decision. *Journal of Corporation Law*, 32: 805-859.

Cantwell, J., Dunning, J. H., & Lundan, S. M. (2010). An evolutionary approach to understanding international business activities: The co-evolution of MNEs and the institutional environment. *Journal of International Business Studies*, 41, 567-586.

Cao, J., & Lerner, J. (2009). The performance of reverse leveraged buyouts. *Journal of Financial Economics*, 91, 139-157.

Casson, M. (2013). Economic analysis of international supply chains: An internalization perspective. *Journal of Supply Chain Management*, 49 (2): 8-13.

Chandler, A. (1962). *Strategy and Structure: Chapters in the History of the American Industrial Enterprise.* Cambridge, MA: MIT Press.

Chaney, T. (2005). *Liquidity Constrained Exporters*. (University of Chicago, Unpublished).

Chung, C. H., Lee, S. H., Beamish, P., & Isobe, T. (2010). Subsidiary expansion/contraction during times of economic crisis. *Journal of International Business Studies*, 41(3): 500–516.

Defever, F., (2006). Functional fragmentation and the location of multinational firms in the enlarged Europe. *Regional Science and Urban Economics* 36, 658-677.

Duhaime, I. M., & Grant, J. H. (1984). Factors influencing divestment decision-making: evidence from a field study. *Strategic Management Journal*, 5, 301-318.

Ellram, L. M., Tate, W. L., & Petersen, K. J. (2013). Offshoring and reshoring: An update on the manufacturing location decision. *Journal of Supply Chain Management*, 49(2): 14-22.

Engel, D., Procher, V. & Schmidt, C. (2013). Does firm heterogeneity affect foreign market entry and exit symmetrically? Empirical evidence for French firms. *Journal of Economic Behavior and Organization*, 85, 35-47.

Engel, D., & Stiebale, J. (2014). Private equity, investment and financial constraints: firm-level evidence for France and the United Kingdom. *Small Business Economics*, 43(1): 197-212.

Feenstra, R. C., & Hanson, G. H. (1997). Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras. *Journal of international economics*, 42(3): 371-393.

Fisch, J. H., & Zschoche, M. (2012). The effect of operational flexibility on decisions to withdraw from foreign production locations. *International Business Review*, 21: 806-816.

Fletcher, R. (2001). A holistic approach to internationalisation. *International Business Review*, 10(1): 25-49.

Fratocchi, L., Di Mauro, C., Barbieri, P., Nassimbeni, G., & Zanoni, A. (2014). When manufacturing moves back: Concepts and questions. *Journal of Purchasing and Supply Management*, 20(1): 54-59.

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1): 78-104.Greene, W. (2004). The behaviour of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects. *The Econometrics Journal*, 7, 98-119.

George, G., Wiklund, J., & Zahra, S. A. (2005). Ownership and the Internationalization of Small Firms, *Journal of Management*, 31, 210-233.

Ghertman, M. (1988). Foreign subsidiary and parents' roles during strategic investment and divestment decisions. *Journal of International Business Studies*, 19, 47-67.

Hamilton, R., & Chow,Y. (1993). Why managers divest—Evidence from New Zealand's largest companies. *Strategic Management Journal*, 14, 479-484.

Haynes, M., Thompson, S., & Wright, M. (2003). The determinants of corporate divestment: Evidence from a panel of UK firms. *Journal of Economic Behavior & Organization*, 52, 147-166.

Head, K., Ries, J., & Swenson, D. (1995). Agglomeration benefits and location choice: Evidence from Japanese manufacturing investments in the United States. *Journal of international economics*, 38(3): 223-247.

Head, K., & Ries, J. (2001). Overseas investment and firm exports. *Review of international economics*, 9(1): 108-122.

Honoré, B., & Kyriazidou, E. (2000). Panel Data Discrete Choice Models with Lagged Dependent Variables, *Econometrica*, 68, 839-874.

Javorcik, B. S., & Spatareanu, M. (2008). To share or not to share: Does local participation matter for spillovers from foreign direct investment? *Journal of Development Economics*, 85 (1-2): 194-217.

Johanson, J., & Vahlne, J. E. (1977). The internationalization process of the firm-a model of knowledge development and increasing foreign market commitments. *Journal of international business studies*, 8(1): 23-32.

Legler, H., & Frietsch, R. (2007). Neuabgrenzung der Wissenswirtschaft – forschungsintensive Industrien und wissensintensive Dienstleistungen (NIW/ISI-Listen 2006). Studien zum deutschen Innovationssystem Nr. 22/2007, NIW / Fraunhofer ISI, Hannover / Karlsruhe.

Li, J. (1995). Foreign entry and survival: Effects of strategic choices on performance in international markets. *Strategic Management Journal*, 16(4): 333-351.

Lou, Y. (2005). Toward coopetition within a Multinational Enterprise: A perspective from foreign subsidiaries. *Journal of World Business*, 40, 71-90.

Kenney, M., Massini, S., & Murtha T. P. (2009). Offshoring administrative and technical work: new fields for understanding the global enterprise. *Journal of International Business Studies*, 40(6): 887-900.

Kinkel, S. (2014) Future and impact of backshoring – Some conclusions from 15 years of research on German practices. *Journal of Purchasing & Supply Management*, 20, 63-65.

Kogut, B. (1985). Designing global strategies: profiting from operational flexibility. *Sloan Management Review*, 27, 27-38.

Kogut, B., & Kulatilaka, N. (1994). Operating Flexibility, Global Manufacturing, and the Option Value of a Multinational Network. *Management Science*, 40: 123-139.

Konings, J., & Murphy, A. (2006). Do multinational enterprises relocate employment to low-wage regions? Evidence from European multinationals. *Review of World Economics*, 142(2): 267-286.

Lee, D., & Madhavan, R. (2010). Divestiture and Firm Performance: A Meta-Analysis. *Journal of Management*, 36(6): 1345-1371.

Levy, D. L. (2005). Offshoring in the new global political economy. *Journal of Management Studies*, 42(3): 685-693.

Lewin, A. Y., Massini, S., & Peeters, C. (2009). Why are companies offshoring innovation? The emerging global race for talent. *Journal of International Business Studies*, 40(6): 901-925.

Mata, J., & Freitas, E. (2012). Foreignness and exit over the life cycle of firms. *Journal of International Business Studies*, 43, 615-630.

Maurer, J. (2011). *Relationships between Foreign Subsidiaries – Competition and Cooperation in Multinational Plant Engineering Companies*. Wiesbaden: Gabler.

Nachum, L., & Song, S. (2011). The MNE as a portfolio: Interdependencies in MNE growth trajectory. *Journal of International Business Studies*, 42, 381-405.

Nguyen, P., Rahman, N., & Zhao, R. (2013). Ownership structure and divestiture decisions: Evidence from Australian firms. *International Review of Financial Analysis*, 30, 170-181.

OECD (2008). *Benchmark Definition of Foreign Direct Investment*, 4th edition, Paris: OECD Publishing.

Peterson, M.F., Arregle, J.-L., & Martin, X. (2012). Multilevel models in international business research. *Journal of International Business Studies*, 43, 451-457.

Prahalad, C. K., & Doz, Y. L. (1987). *The Multinational Mission*. New York: Free Press.

Rugman, A., Verbeke, A., & Yuan, W. (2011). Re-conceptualizing Bartlett and Ghoshal's Classification of National Subsidiary Roles in the Multinational Enterprise. *Journal of Management Studies*, 48(2): 235-277.

Shimizu, K. (2007). Prospect theory, behavioral theory, and threat-rigidity thesis: Combinative effects on organizational decisions to divest formerly acquired units. *Academy of Management Journal*, 50, 1495-1514.

Song, J. (2002). Firm capabilities and technology ladders: Sequential foreign direct investments of Japanese electronics firms in East Asia. *Strategic Management Journal*, 23, 191-210.

Song, S. (2014). Subsidiary Divestment: The Role of Multinational Flexibility. *Management International Review*, *54*(1): 47-70.

Stiebale, J. (2011). Do Financial Constraints Matter for Foreign Market Entry? A Firm-Level Examination. *The World Economy* 34 (1): 123-153.

The Economist (2013). Special report: Outsourcing and offshoring. Issue 19th January 2013.

The Economist (2015). The future of factory Asia: A tightening grip – Rising Chinese wages will only strengthen Asia's hold on manufacturing. Issue 14th March 2015.

UNCTAD (2012) *World Investment Report - Towards a New Generation of Investment Policies*. ISBN: ISBN 978-92-1-112843-7.

UNCTAD (2013) *World Investment Report - Global Value Chains: Investment and Trade for Development*. ISBN: 978-92-1-112868-0.

Villalonga, B., & McGahan, A. M. (2005). The choice among acquisitions, alliances, and divestitures. *Strategic Management Journal*, 26, 1183-1208.

Wan, W. P, Chen, H. S., & Yiu, D. W. (2015). Organizational image, identity and organizational divestment: A theoretical examination. *Global Strategy Journal*, 5, 205-222.

Williamson, O. E. (1975). *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.

Young, S., Hood, N., & Peters, E. (1994). Multinational enterprises and regional economic development. *Regional Studies*, 28(7): 6577-6777.

Yukiko, I. T. O. (2015). *Are There Trade-offs between the Existing and New Foreign Activities?* Discussion papers from Research Institute of Economy, Trade and Industry (RIETI), No. 15-E-101.

Zajac, E., & Westphal, J. (1994). The costs and benefits of managerial incentives and monitoring in large U.S. corporations: When is more not better? *Strategic Management Journal*, 15: 121-143.

Zanker, C., Kinkel, S., & Maloca, S. (2013). Globale Produktion von einer starken Heimatbasis aus. *Mitteilungen aus der ISI-Erhebung zur Modernisierung der Produktion* ,63. Karlsruhe: Fraunhofer ISI, http://www.isi.fraunhofer.de/isi-wAssets/docs/i/de/pi-mitteilungen/PI63.pdf.

Appendix

Table 1: Shifts in the domestic and foreign arena

Domestic / Foreign	No change	Change	*Total*
No change	3,372 (42.4%)	1,044 (13.1%)	4,416
Change	2,119 (26.6%)	1,417 (17.8%)	3,536
Total	5,491	2,461	7,952

Table 2: Transition probabilities for shifts in the foreign arena

Foreign / Foreign	No change$_{t+1}$	INV$_{t+1}$	DIV$_{t+1}$	INV$_{t+1}$ & DIV$_{t+1}$	*Total*
No change$_t$	2,342 (62.2)	437 (11.6)	805 (21.4)	180 (4.8)	3,764 (100)
INV$_t$	1,845 (53.7)	441 (12.8)	**841** **(24.5)**	309 (9)	3,436 (100)
DIV$_t$	191 (35.3)	**162** **(29.9)**	117 (21.6)	71 (13.1)	541 (100)
INV$_t$ & DIV$_t$	91 (20)	72 (15.8)	112 (24.6)	180 (39.6)	455 (100)
Total	4,469 (54.5)	1,112 (13.6)	1,875 (22.9)	740 (9)	8,196 (100)

Note: Share on the row sum is given in parentheses.

Table 3: Transition probabilities for shifts in the domestic arena

Domestic / Domestic	No change$_{t+1}$	INV$_{t+1}$	DIV$_{t+1}$	*Total*
No change$_t$	4,397 (77.1)	611 (10.7)	695 (12.2)	5,703 (100)
INV$_t$	632 (43.6)	298 (20.6)	**519** **(35.8)**	1,449 (100)
DIV$_t$	547 (52.4)	**200** **(19.2)**	297 (28.5)	1,044 (100)
Total	5,576 (68)	1,109 (13.5)	1,511 (18.4)	8,196 (100)

Note: Share on the row sum is given in parentheses.

Table 4: Correlation between past shifts in the foreign arena and current shifts in the domestic arena

Foreign \ Domestic	No change$_{t+1}$	INV$_{t+1}$	DIV$_{t+1}$	*Total*
No change$_t$	2,705 (71.9)	437 (11.6)	622 (16.5)	3,764 (100)
INV$_t$	2,294 (66.8)	538 (15.7)	**604** **(17.6)**	3,436 (100)
DIV$_t$	352 (65.1)	**65** **(12.0)**	124 (22.9)	541 (100)
INV$_t$ & DIV$_t$	225 (49.5)	69 (15.2)	161 (35.4)	455 (100)
Total	5,576 (68)	1,109 (13.5)	1,511 (18.4)	8,196 (100)

Note: Share on the row sum is given in parentheses.

Table 5: Correlation between past shifts in the domestic arena and current shifts in the foreign arena

Domestic \ Foreign	No change$_{t+1}$	INV$_{t+1}$	DIV$_{t+1}$	INV$_{t+1}$ & DIV$_{t+1}$	*Total*
No change$_t$	3,283 (57.6)	720 (12.6)	1,264 (22.2)	436 (7.7)	5,703 (100)
INV$_t$	725 (50)	234 (16.2)	**343** **(23.7)**	147 (10.1)	1,449 (100)
DIV$_t$	461 (44.2)	**158** **(15.1)**	268 (25.7)	157 (15)	1,044 (100)
Total	4,469 (54.5)	1,112 (13.6)	1,875 (22.9)	740 (9)	8,196 (100)

Note: Share on the row sum is given in parentheses.

Table 6: Summary statistics

Variable (one-period lagged values)	Description	Mean	Std. Dev.
Dependent and independent variables			
invest foreign	= 1, foreign subsidiaries increase	0.469	0.499
invest foreign ind. cty	= 1, foreign subsidiaries increase in industrialized country	0.370	0.483
invest foreign dev. cty	= 1, foreign subsidiaries increase in developed country	0.164	0.371
invest domestic	= 1, domestic subsidiaries increase	0.171	0.376
divest foreign	= 1, foreign subsidiaries decrease	0.113	0.317
divest foreign ind. cty	= 1, foreign subsidiaries decrease in industrialized country	0.091	0.287
divest foreign dev. cty	= 1, foreign subsidiaries decreases in developed country	0.035	0.184
divest domestic	= 1, domestic subsidiaries decrease	0.124	0.330
Control variables			
no. of subsidiaries	number of all subsidiaries	4.953	11.413
share of foreign subsidiaries	foreign subsidiaries / all subsidiaries	0.721	0.309
pure privately-owned	= 1, all owners are individuals	0.022	0.146
corporate shareholder	= 1, at least one corporate shareholder	0.242	0.428
financial shareholder	= 1, at least one financial shareholder	0.170	0.376
foreign shareholder	= 1, at least one foreign shareholder	0.319	0.466
operating revenue	log of operating revenue	10.267	1.641
firm age	log of firm age	3.235	0.689
export share	export sales / total sales	0.260	0.278
labour productivity	log (value added per employee)	3.848	1.492
cash flow ratio	cash flow / total assets	0.041	0.109
R&D	=1, if firm has intangible assets	0.887	0.316
high-tech manufacturing		0.189	0.391
low-tech manufacturing	... according to Legler & Frietsch (2007)	0.319	0.466
high-tech services		0.106	0.307
other services	e.g., retail & wholesale trade	0.386	0.487

Note: All monetary values are measured in 1,000€. Sample contains 7,952 firm-year observations.

Table 7: Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	invest foreign	1.00																						
2	invest for. ind. cty	0.82	1.00																					
3	invest for. dev. cty	0.47	0.03	1.00																				
4	invest domestic	0.17	0.14	0.11	1.00																			
5	divest foreign	-0.03	-0.02	0.04	0.00	1.00																		
6	divest for. ind. cty	-0.02	-0.02	0.04	-0.01	0.88	1.00																	
7	divest for. dev. cty	0.00	-0.01	0.06	0.00	0.53	0.18	1.00																
8	divest domestic	0.04	0.04	0.06	-0.17	0.13	0.12	0.10	1.00															
9	no. of subsidiaries	0.10	0.12	0.15	0.17	0.17	0.15	0.16	0.10	1.00														
10	share of for subsid.	0.01	0.02	0.00	-0.46	-0.02	-0.01	-0.01	-0.12	-0.21	1.00													
11	pure privately-own.	0.00	-0.01	0.00	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	1.00												
12	corporate. shareh.	0.05	0.03	0.02	0.04	-0.04	-0.04	-0.01	-0.01	-0.02	-0.05	-0.08	1.00											
13	financial shareh.	0.02	0.01	0.00	0.02	0.00	0.00	0.00	0.02	0.00	-0.04	-0.07	0.29	1.00										
14	foreign shareholder	0.00	0.02	-0.04	-0.04	0.01	0.01	-0.01	0.01	-0.02	0.04	-0.02	-0.01	-0.04	1.00									
15	operating revenue	0.07	0.07	0.11	0.14	0.17	0.16	0.11	0.12	0.21	-0.23	-0.08	-0.11	-0.06	0.07	1.00								
16	firm age	0.00	0.00	0.02	0.04	0.08	0.07	0.04	0.08	0.14	-0.18	0.02	-0.04	0.00	0.04	0.23	1.00							
17	export share	0.01	0.00	0.02	-0.08	0.03	0.03	-0.01	-0.08	-0.07	0.20	0.03	-0.04	-0.02	0.09	0.02	0.02	1.00						
18	labour productivity	0.01	0.01	0.02	0.07	0.04	0.03	0.03	0.02	0.10	-0.14	-0.01	-0.02	0.01	0.00	0.29	0.12	0.03	1.00					
19	cash flow ratio	-0.01	-0.02	0.01	0.04	0.00	0.00	0.00	-0.01	0.03	-0.06	0.01	0.01	-0.02	-0.06	0.13	0.09	-0.01	0.36	1.00				
20	R&D	0.02	0.03	0.02	0.06	0.04	0.04	0.02	0.02	0.05	-0.06	0.00	0.02	0.06	-0.02	0.29	0.09	0.04	0.13	0.06	1.00			
21	high-tech manufact.	0.00	-0.01	0.04	-0.05	0.05	0.05	0.02	-0.03	-0.03	0.12	-0.03	-0.06	-0.03	0.09	0.09	0.05	0.21	0.01	0.02	0.07	1.00		
22	high-tech services	0.03	0.02	0.01	-0.03	-0.01	-0.01	-0.01	-0.01	-0.03	0.08	0.00	0.05	0.06	-0.01	-0.19	-0.21	-0.05	-0.09	-0.10	0.01	-0.17	1.00	
23	other services	-0.02	0.00	-0.05	0.07	-0.06	-0.06	-0.02	0.02	0.05	-0.15	0.01	0.01	-0.02	-0.03	-0.05	-0.04	-0.19	0.01	0.01	-0.13	-0.38	-0.27	1.00

Table 8: Hypotheses and empirical results

Hypothesis	Description	Expectation	Empirical result
Divestment-follows-investment			
1a	Divestment at home after investment abroad	+	+
1b	Divestment at home after investment at home	0	0
2a	Divestment abroad after investment abroad	+	0
2b	Divestment abroad after investment at home	+	0
Investment-follows-divestment			
3a	Investment at home after divestment abroad	+	0
3b	Investment at home after divestment at home	0	+
4a	Investment abroad after divestment abroad	+	+
4b	Investment abroad after divestment at home	+	+
Heterogeneity of the foreign arena			
5a	Divestment after investment is more likely within the bloc of industrialized or developing countries	+	+
5b	Investment after divestment is more likely within the bloc of industrialized or developing countries	+	+

Table 9: Static random effects probit model: Investment and divestment in the domestic and the foreign arena of MNEs

	(1)		(2)		(3)		(4)	
	divest domestic		divest abroad		invest domestic		invest abroad	
	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.
MNEs subsidiaries' activities								
invest abroad	***H1a*** 0.019**	(0.009)	***H2a*** 0.023	(0.014)	/	/	/	/
invest domestic	***H1b*** 0.013	(0.010)	***H2b*** 0.000	(0.018)	/	/	/	/
divest abroad	/	/	/	/	***H3a*** -0.022	(0.015)	***H4a*** 0.158***	(0.017)
divest domestic	/	/	/	/	***H3b*** 0.055***	(0.012)	***H4b*** 0.033**	(0.016)
no. of subsidiaries	0.008***	(0.001)	0.025***	(0.001)	0.004***	(0.001)	0.018***	(0.001)
share of foreign subsidiaries	-0.482***	(0.013)	0.224***	(0.025)	-0.203***	(0.015)	0.09***	(0.021)
MNEs ownership								
pure privately-owned firms	-0.051*	(0.029)	-0.059	(0.042)	0.029	(0.027)	-0.024	(0.039)
corporate shareholder	-0.011	(0.010)	-0.021	(0.015)	0.006	(0.011)	-0.005	(0.014)
financial shareholder	0.009	(0.011)	0.026	(0.016)	0.005	(0.012)	0.034**	(0.015)
foreign shareholder	0.007	(0.009)	-0.015	(0.013)	-0.033***	(0.009)	-0.029**	(0.012)
Other MNEs characteristics								
operating revenue	0.011***	(0.003)	0.041***	(0.004)	0.030***	(0.003)	0.057***	(0.004)
firm age	-0.005	(0.006)	-0.009	(0.009)	-0.025***	(0.006)	-0.035***	(0.009)
export share	-0.031**	(0.015)	-0.027	(0.023)	-0.052***	(0.016)	0.153***	(0.020)
labour productivity	-0.005*	(0.003)	-0.005	(0.004)	0.006*	(0.003)	0.000	(0.004)
cash flow ratio	-0.122***	(0.034)	-0.212***	(0.049)	0.005	(0.040)	-0.111**	(0.049)
R&D	-0.013	(0.014)	-0.042**	(0.019)	0.043***	(0.016)	0.004	(0.020)
high-tech manufacturing	0.005	(0.012)	0.010	(0.018)	-0.006	(0.012)	0.009	(0.016)
high-tech services	0.027*	(0.015)	0.048**	(0.022)	0.026	(0.016)	0.054***	(0.021)
other services	-0.031***	(0.010)	-0.018	(0.015)	0.022**	(0.010)	-0.021	(0.014)
rho	0.129***	(0.041)	0.208***	(0.034)	0.000	(0.000)	0.241***	(0.034)
N (nonzero observations)	6,918 (1,427)		6,889 (2,473)		6,525 (1,034)		6,128 (1,712)	

Notes: ***, **, * denotes significance at the 1%, 5%, 10%-level. Marginal effects (ME) are reported and standard errors (s.e.) are shown in parentheses. All independent and control variables are lagged by one period-lagged. Reference firm is engaged in low-tech manufacturing industries. Nonzero observations: MNE engaged in divestment and/or investment. Zero observations: No investment and/or divestment change is detected.

Table 10: Static random effects probit model: Investment and divestment in the domestic arena by origin and industry

	(5)		(6)		(7)		(8)		(9)		(10)	
	All industries divest domestic		high-tech industry divest domestic		low-tech industry divest domestic		All industries invest domestic		high-tech industry invest domestic		low-tech industry invest domestic	
	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.
MNEs subsidiaries' activities												
invest abroad ind. countries	0.027***	(0.009)	0.021	(0.014)	0.027**	(0.011)	/	/	/	/	/	/
invest abroad dev. countries	0.027**	(0.010)	0.023	(0.016)	0.026*	(0.014)	/	/	/	/	/	/
invest domestic	0.011	(0.010)	0.003	(0.016)	0.014	(0.012)	/	/	/	/	/	/
divest foreign ind. countries	/	/	/	/	/	/	-0.029*	(0.016)	-0.005	(0.024)	-0.046**	(0.021)
divest foreign dev. countries	/	/	/	/	/	/	-0.003	(0.024)	0.094***	(0.034)	-0.074**	(0.034)
divest domestic	/	/	/	/	/	/	0.055***	(0.012)	0.031	(0.021)	0.065***	(0.015)
no. of subsidiaries	0.008***	(0.001)	0.008***	(0.001)	0.008***	(0.001)	0.004***	(0.001)	0.003**	(0.001)	0.005***	(0.001)
share of foreign subsidiaries	-0.488***	(0.013)	-0.517***	(0.022)	-0.474***	(0.016)	-0.202***	(0.015)	-0.216***	(0.027)	-0.201***	(0.017)
MNEs ownership												
pure privately-owned firms	-0.051*	(0.029)	-0.025	(0.068)	-0.051	(0.032)	0.029	(0.027)	0.130***	(0.046)	-0.007	(0.033)
corporate shareholder	-0.011	(0.010)	-0.008	(0.018)	-0.007	(0.012)	0.005	(0.011)	0.001	(0.019)	0.005	(0.013)
financial shareholder	0.009	(0.011)	-0.027	(0.020)	0.024*	(0.013)	0.005	(0.012)	0.039**	(0.019)	-0.012	(0.015)
foreign shareholder	0.008	(0.009)	-0.005	(0.014)	0.016	(0.011)	-0.033***	(0.009)	-0.030*	(0.015)	-0.035***	(0.012)
Other MNEs characteristics												
operating revenue	0.010***	(0.003)	0.011**	(0.005)	0.01***	(0.003)	0.030***	(0.003)	0.030***	(0.005)	0.030***	(0.004)
firm age	-0.004	(0.006)	-0.004	(0.011)	-0.004	(0.007)	-0.025***	(0.006)	-0.026**	(0.011)	-0.024***	(0.008)
export share	-0.032**	(0.015)	-0.017	(0.025)	-0.036*	(0.019)	-0.052***	(0.016)	-0.042	(0.027)	-0.053***	(0.02)
labour productivity	-0.005*	(0.003)	-0.006	(0.005)	-0.004	(0.004)	0.006*	(0.003)	0.005	(0.006)	0.006	(0.004)
cash flow ratio	-0.125***	(0.034)	-0.09*	(0.050)	-0.146***	(0.046)	0.005	(0.04)	0.036	(0.059)	-0.015	(0.052)
R&D	-0.013	(0.014)	0.010	(0.025)	-0.016	(0.016)	0.043***	(0.016)	0.026	(0.032)	0.048***	(0.018)
high-tech manufacturing	0.005	(0.012)	-0.025	(0.016)	/	/	-0.006	(0.012)	-0.031*	(0.017)	/	/
high-tech services	0.026*	(0.015)	/	/	/	/	0.026*	(0.016)	/	/	/	/
other services	-0.031***	(0.010)	/	/	-0.030***	(0.010)	0.022**	(0.01)	/	/	0.023**	(0.011)
rho	0.118***	(0.041)	0.217***	(0.080)	0.064*	(0.048)	0.000	(0.000)	0.000	(0.000)	0.000	(0.000)
N (nonzero observations)	6,918 (1,427)		2,090 (370)		4,828 (1,057)		6,525 (1,034)		1,972 (252)		4,553 (2,258)	

Notes: ***, **, * denotes significance at the 1%, 5%, 10%-level. Marginal effects (ME) are reported and standard errors (s.e.) are shown in parentheses. All independent and control variables are lagged by one period-lagged. Reference firm is engaged in low-tech manufacturing industries. Nonzero observations: MNE engaged in divestment and/or investment. Zero observations: No investment and/or divestment change is detected.

Table 11: Static random effects probit model: Investment and divestment in industrialized foreign countries by origin and industry

	(11)		(12)		(13)		(14)		(15)		(16)	
	All industries divest ind. cty		high-tech industry divest ind. cty		low-tech industry divest ind. cty		All industries invest ind. cty		high-tech industry invest ind. cty		low-tech industry invest ind. cty	
	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.
MNEs subsidiaries' activities												
invest abroad ind. countries	0.083***	(0.013)	0.134***	(0.023)	0.061***	(0.016)	/	/	/	/	/	/
invest abroad dev. countries	-0.125***	(0.019)	-0.169***	(0.032)	-0.120***	(0.023)	/	/	/	/	/	/
invest domestic	0.012	(0.017)	0.030	(0.034)	0.001	(0.020)	/	/	/	/	/	/
divest foreign ind. countries	/	/	/	/	/	/	0.169***	(0.017)	0.138***	(0.032)	0.176***	(0.019)
divest foreign dev. countries	/	/	/	/	/	/	0.033	(0.030)	0.005	(0.056)	0.035	(0.036)
divest domestic	/	/	/	/	/	/	0.020	(0.015)	0.022	(0.032)	0.021	(0.017)
no. of subsidiaries	0.024***	(0.001)	0.040***	(0.003)	0.021***	(0.001)	0.016***	(0.001)	0.027***	(0.003)	0.014***	(0.001)
share of foreign subsidiaries	0.231***	(0.024)	0.241***	(0.046)	0.220***	(0.028)	0.083***	(0.020)	0.126***	(0.042)	0.067***	(0.022)
MNEs ownership												
pure privately-owned firms	-0.062	(0.041)	0.050	(0.075)	-0.102**	(0.049)	0.003	(0.036)	0.064	(0.076)	-0.021	(0.040)
corporate shareholder	-0.028*	(0.014)	-0.018	(0.028)	-0.030*	(0.017)	0.000	(0.013)	0.025	(0.028)	-0.010	(0.015)
financial shareholder	0.022	(0.016)	-0.003	(0.029)	0.029	(0.019)	0.026*	(0.014)	0.004	(0.029)	0.032*	(0.017)
foreign shareholder	0.000	(0.012)	-0.003	(0.021)	0.002	(0.015)	-0.017	(0.011)	-0.011	(0.021)	-0.019	(0.013)
Other MNEs characteristics												
operating revenue	0.037***	(0.004)	0.037***	(0.008)	0.035***	(0.005)	0.046***	(0.004)	0.053***	(0.008)	0.041***	(0.005)
firm age	-0.009	(0.009)	-0.010	(0.016)	-0.011	(0.011)	-0.035***	(0.008)	-0.049***	(0.016)	-0.030***	(0.010)
export share	-0.03 0	(0.022)	-0.024	(0.037)	-0.026	(0.027)	0.118***	(0.020)	0.085**	(0.037)	0.132***	(0.023)
labour productivity	-0.005	(0.004)	-0.005	(0.007)	-0.005	(0.005)	0.001	(0.004)	-0.002	(0.007)	0.002	(0.005)
cash flow ratio	-0.211***	(0.047)	-0.186***	(0.07)	-0.234***	(0.061)	-0.095**	(0.046)	-0.110	(0.075)	-0.089	(0.059)
R&D	-0.031*	(0.019)	-0.068*	(0.037)	-0.016	(0.022)	0.023	(0.020)	0.036	(0.046)	0.024	(0.021)
high-tech manufacturing	0.017	(0.017)	-0.027	(0.024)	/	/	0.007	(0.016)	-0.025	(0.025)	/	/
high-tech services	0.044**	(0.021)	/	/	/	/	0.044**	(0.020)	/	/	/	/
other services	-0.014	(0.014)	/	/	-0.012	(0.015)	-0.018	(0.013)	/	/	-0.014	(0.013)
rho	0.166***	(0.039)	0.058	(0.071)	0.190***	(0.046)	0.256***	(0.039)	0.277***	(0.071)	0.240***	(0.046)
N (nonzero observations)	6,398 (1,982)		1,851 (614)		4,547 (1,368)		5,723 (1,307)		1,660 (423)		4,063 (884)	

Notes: ***, **, * denotes significance at the 1%, 5%, 10%-level. Marginal effects (ME) are reported and standard errors (s.e.) are shown in parentheses. All independent and control variables are lagged by one period-lagged. Reference firm is engaged in low-tech manufacturing industries. Nonzero observations: MNE engaged in divestment and/or investment. Zero observations: No investment and/or divestment change is detected.

Table 12: Static random effects model: Investment and divestment in developing countries by origin and industry

	(17)		(18)		(19)		(20)		(21)		(22)	
	All industries divest dev. cty		high-tech industry divest dev. cty		low-tech industry divest dev. cty		All industries invest dev. cty		high-tech industry invest dev. cty		low-tech industry invest dev. cty	
	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.	ME	s.e.
MNEs subsidiaries' activities												
invest abroad ind. countries	-0.069***	(0.011)	-0.068***	(0.020)	-0.069***	(0.012)	/	/	/	/	/	/
invest abroad dev. countries	0.162***	(0.010)	0.153***	(0.016)	0.158***	(0.013)	/	/	/	/	/	/
invest domestic	-0.035***	(0.013)	-0.062**	(0.028)	-0.031**	(0.015)	/	/	/	/	/	/
divest abroad ind. countries	/	/	/	/	/	/	0.028*	(0.015)	0.025	(0.029)	0.023	(0.017)
divest abroad dev. countries	/	/	/	/	/	/	0.089***	(0.020)	0.081**	(0.039)	0.084***	(0.022)
divest domestic	/	/	/	/	/	/	0.019*	(0.011)	0.018	(0.025)	0.019	(0.012)
no. of subsidiaries	0.014***	(0.001)	0.020***	(0.002)	0.012***	(0.001)	0.011***	(0.001)	0.018***	(0.002)	0.009***	(0.001)
share of foreign subsidiaries	0.113***	(0.017)	0.100***	(0.033)	0.107***	(0.019)	0.048***	(0.015)	0.042	(0.033)	0.046***	(0.017)
MNEs ownership												
pure privately-owned firms	-0.035	(0.031)	-0.029	(0.082)	-0.040	(0.033)	-0.067*	(0.038)	-0.093	(0.104)	-0.069*	(0.039)
corporate shareholder	0.002	(0.011)	0.013	(0.021)	-0.002	(0.012)	0.005	(0.010)	0.033	(0.023)	-0.005	(0.011)
financial shareholder	0.001	(0.011)	-0.003	(0.022)	0.003	(0.013)	0.014	(0.011)	0.012	(0.023)	0.014	(0.012)
foreign shareholder	-0.037***	(0.009)	-0.019	(0.017)	-0.039***	(0.011)	-0.034***	(0.009)	-0.018	(0.018)	-0.038***	(0.011)
Other MNEs characteristics												
operating revenue	0.021***	(0.003)	0.027***	(0.006)	0.017***	(0.004)	0.039***	(0.003)	0.054***	(0.007)	0.032***	(0.004)
firm age	-0.009	(0.006)	-0.017	(0.012)	-0.006	(0.007)	-0.012*	(0.006)	-0.010	(0.013)	-0.012	(0.007)
export share	-0.002	(0.016)	-0.036	(0.028)	0.012	(0.018)	0.098***	(0.015)	0.093***	(0.030)	0.099***	(0.018)
labour productivity	-0.003	(0.003)	-0.007	(0.005)	-0.002	(0.004)	0.002	(0.003)	-0.011*	(0.006)	0.007*	(0.004)
cash flow ratio	-0.055	(0.035)	-0.101*	(0.055)	-0.026	(0.046)	-0.109***	(0.037)	-0.109*	(0.065)	-0.113**	(0.045)
R&D	-0.024*	(0.013)	-0.017	(0.029)	-0.024	(0.015)	-0.025*	(0.014)	-0.042	(0.034)	-0.014	(0.015)
hightech manufacturing	-0.005	(0.012)	0.001	(0.018)	/	/	0.021*	(0.012)	-0.023	(0.021)	/	/
hightech services	0.001	(0.015)	/	/	/	/	0.040***	(0.016)	/	/	/	/
other services	-0.016	(0.010)	/	/	-0.015	(0.010)	-0.019*	(0.011)	/	/	-0.017*	(0.010)
rho	0.114**	(0.060)	0.000	(0.000)	0.186***	(0.069)	0.363***	(0.050)	0.274***	(0.084)	0.399***	(0.062)
N (nonzero observations)	5,191 (775)		1,480 (243)		3,711 (532)		5,202 (786)		1,511 (274)		3,691 (512)	

Notes: ***, **, * denotes significance at the 1%, 5%, 10%-level. Marginal effects (ME) are reported and standard errors (s.e.) are shown in parentheses. All independent and control variables are lagged by one period-lagged. Reference firm is engaged in low-tech manufacturing industries. Nonzero observations: MNE engaged in divestment and/or investment. Zero observations: No investment and/or divestment change is detected.