MNE divestments of foreign affiliates: does the strategic role of the affiliate have an impact?

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MNE divestments of foreign affiliates:
Does the strategic role of the affiliate have an impact?

Abstract
Divestments by multinational enterprises (MNEs) of their foreign affiliates are an increasingly important phenomenon in the contemporary global economy. We investigate what determines the likelihood that a foreign affiliate will be divested emphasising, in particular, the strategic roles played by the affiliates within their parent MNEs’ global value chains, and hence the degree of relatedness between the affiliate and the parent firm. We find that poor parent performance and poor affiliate performance are key determinants of affiliate divestment, but that the magnitude of these effects varies significantly depending upon whether the affiliates are in related or unrelated sectors, are horizontal or vertical affiliates, and are located upstream or downstream in the global value chain of their parent MNE.

Keywords: divestment; multinational enterprise; foreign affiliate; strategic role; relatedness; global value chain

Declarations of interest: none
1 Introduction

There have been a large number of empirical studies in the International Business (IB) literature (and elsewhere) on the determinants of foreign direct investment (FDI) by multinational enterprises (MNEs), but relatively little work on the determinants of why MNEs divest their overseas affiliates. Various motives have been advanced for why parent firms may divest overseas affiliates, such as: to correct over-diversification (Markides, 1992, 1995; Hoskisson, Johnson & Moesel, 1994; Haynes, Thompson & Wright, 2003); to improve firm efficiency and efficacy (Bergh, 1997, 1998; Brauer, 2006; Belderbos & Zou, 2009); to free up scarce resources for opportunities elsewhere (Hamilton & Chow, 1993; Capron, Mitchell & Swaminathan, 2001; Berry, 2010); and in response to changing market conditions (Bergh & Lawless, 1998; Belderbos & Zou, 2009; Berry, 2013; Blake & Moschieri, 2016). Furthermore, the literature highlights various determinants of the MNE divestment decision that include a number of parent firm characteristics, affiliate characteristics, and host country market conditions (Schmid & Morschett, 2020). Empirically, divestment has become more important over recent years, with many countries reporting a decline in net foreign investment outflows (UNCTAD, 2019). This trend is likely to get even stronger as populism gains strength (Rodrik, 2018), and global value chains (GVCs) become increasingly conflicted by cross-border trade and investment barriers (McCann, 2018).

**Relatedness** is generally an important issue in the corporate diversification literature (Palepu, 1985; Markides & Williamson, 1994; Miller, 2006). Related international diversification enables MNEs to benefit from economies of scope and to transfer knowledge and learning from the MNE to its affiliates (and vice versa) more easily. Relatedness is typically defined in terms of business relatedness (Pehrsson, 2006) or product market relatedness (Berry, 2013), hence focusing on whether the affiliate is engaged in similar activities as its parent. There

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1 We use the term “affiliates” throughout to cover not only majority-owned subsidiaries, but also cases where the parent firm holds a minority yet still significant (we use a 25% threshold in our empirical analysis) shareholding.
is also a growing recognition that the extent of relatedness between the foreign affiliate and the MNE parent has an impact on the likelihood of divestment (Bergh, 1998; Zuckerman, 2000; Berry, 2013), and that MNEs are more likely to divest unrelated affiliates before related affiliates when faced with poor performance. Tan & Sousa (2018) differentiate between product relatedness and intangible resource relatedness, and highlight the importance of MNEs’ learning from foreign affiliates in their divestment decisions. In this paper, we suggest that research on MNEs’ divestment of their foreign affiliates can benefit from considering in more depth how the affiliate is related to the parent in terms of the role that the affiliate plays within the MNE’s global value chain (GVC). More specifically, we draw upon the strategic management literature on affiliate roles as well as the GVC literature to classify foreign affiliates to one of four types: (1) horizontal; (2) upstream; (3) downstream; and (4) unrelated. The first three types are all related affiliates because their activities are central to their parents’ GVCs.

Our empirical analysis focuses on manufacturing MNEs and draws upon a dataset of 7254 foreign affiliates in 78 different host countries. We argue and find that poor parent financial performance and poor affiliate performance increase the likelihood of divestment, and that this likelihood depends upon the strategic roles played by the affiliates. When parent performance declines, unrelated affiliates are more likely to be divested than related affiliates. As affiliate performance deteriorates, we show that the likelihood of divestment increases more strongly for vertical (upstream or downstream) affiliates in comparison to horizontal affiliates, and for downstream affiliates in comparison to upstream affiliates.

The contributions of this paper are twofold. The first and more important contribution is to develop further the concept of relatedness as it applies to MNE parents and their foreign affiliates, and to emphasize the strategic roles that the affiliates play within the GVCs of their parents. In so doing, we provide nuanced insights into how the role of the affiliate and the value of its relationship to the parent matters, even when the MNE parent and/or the affiliate are faced
with financial problems. We then build on the extant literature (Bergh, 1998; Zuckerman, 2000; Berry, 2013; Tan & Sousa, 2018) to demonstrate how these strategic roles affect the likelihood of divestment. Our findings are particularly topical given that MNEs are considering reconfiguring their GVCs in response to current anti-globalization sentiment and the Covid-19 pandemic (Kobrin, 2017; Rodrik, 2018; Strange, 2020).

Second, prior studies on how MNE-parent and affiliate performance impact the divestment of foreign affiliates have been limited to US-based firms and/or firms from a small set of developed countries. We base our empirical analysis on a large sample of 7,386 parent-affiliate linkages that have worldwide scope (representing 42 home countries and 78 host countries). By doing so, we re-confirm the findings of past studies on divestment but using a larger and more geographically diverse dataset.

Our paper is organized as follows. The following section reviews the relevant literature and develops the hypotheses. Section three describes the dataset and the variables used in our regression model, and provides some descriptive statistics. Section four presents and discusses the regression results. The final section concludes the paper, considers areas for future research, and highlights the implications of the analysis for managers and for policy-makers.

2 Literature Review & Hypothesis Development

We build upon the behavioural theory of the firm (Cyert & March, 1992) and the knowledge-based view to develop our hypotheses (Grant, 1996; Szulanski, 1996). The behavioural theory of the firm suggests that parent firms typically engage in problem-oriented searches for alternative strategies in response to financial difficulties. When profitability is declining, managers are under pressure to find solutions to improve firm performance to meet the expectations of their shareholders and other investors (Chang, 1996; Shimizu, 2007; Kolev, 2016). Typically, parents will search for solutions such as allocating more resources or assigning more attention to help affiliates (sub-units) address the problem (Cyert & March,
Parents will typically draw upon their existing knowledge bases in seeking solutions, and affiliates whose activities are not proximate to the core competences of the parent are less likely to benefit from this process (Chang, 1996). When parents and affiliates have similar knowledge bases, they are more likely to learn from each other, and the opportunity to do so increases when there is a greater level of similarity between their business activities (Porter, 1985). As such, the amount of attention devoted to a problem experienced by a member of the coalition is influenced by the knowledge sharing capacity and the bargaining position of the member within the firm (Cyert & March, 1992). This is echoed in the literatures on intra-organisation power (Lawrence & Lorsch, 1967; Hickson et al., 1971) and on affiliate power (Mudambi & Navarra, 2004; Bouquet & Birkinshaw, 2008), which suggests that an affiliate’s role within the MNE has a non-negligible influence on the amount of attention paid to it by its parent. Faced with financial problems, MNEs often cannot attend to all problems at the same time and to the same degree; some problems need to be resolved as quickly as possible. Divestment (either through liquidation or sale) of a foreign affiliate may well be considered an expeditious solution in situations of declining profitability (Song, 2014; Benito, 1997).

2.1 Review of the Empirical Literature

What factors determine why a parent firm chooses to divest a foreign affiliate? The literature has mainly focused on three groups of factors (Schmid & Morschett, 2020). The first group of factors contains various characteristics of the affiliate. The most important factor is poor and declining financial performance, whilst other relevant characteristics include size, financial liability and operational experience in the host country (Shaver, Mitchell & Yeung, 1997; Berry, 2013; Hamilton & Chow, 1993). The second set of factors contains various characteristics of the parent. Again, the most important factor is poor financial performance, whilst other relevant characteristics include knowledge intensity (Benito, 1997) and the extent of diversification (Hoskisson, Johnson & Moesel, 1994). The third set of factors relate to the market conditions
in the host country in which the affiliate is operating. Important variables are market size, economic growth, institutional stability, and distance (both geographical and cultural) between the host and home countries (Chatterjee, Harrison & Bergh, 2003; Berry, 2010; 2013; Damaraju, Barney & Makhija, 2015). There is some evidence that the factors interact, such that the impact of a country-level factor may be contingent upon an affiliate-level or a parent-level factor. There is growing evidence that the relatedness between a foreign affiliate and its parent firm determines the likelihood of its divestment (or survival). Related affiliates share similar knowledge with their parents, and hence are less likely to be divested than unrelated affiliates (Boddewyn, 1979; Bergh, 1995; Zuckerman, 2000; Berry, 2013; Damaraju, Barney & Makhija, 2015; Tan & Sousa, 2018). However, there is no research relating affiliate strategic roles within parental GVCs to the likelihood of divestment, and the moderating impact of these roles on the relationship between parent and affiliate performance and divestment (Arte & Larimo, 2019).

2.2 Affiliate Strategic Roles

Increasing scholarly attention has been paid to the affiliates of MNEs as the unit of analysis in strategic management and international business research since the early 1980s. Various authors have classified affiliates of MNEs into different types, including inter alia White & Poynter (1984), Bartlett & Ghoshal (1986), Jarillo & Martínez (1990), Gupta & Govindarajan (1991, 1994), Birkinshaw & Morrison (1995) and Taggart (1997a, 1997b, 1998). These authors often identify different roles based on the affiliates’ positioning along two dimensions. For instance, Bartlett & Ghoshal (1986) consider affiliate competence and the strategic importance of host country locations, whilst Jarillo & Martínez (1990) and Taggart (1997a, 1998) consider integration and local responsiveness. Roles are given labels, and there is considerable overlap notwithstanding differences in terminology. A role proposed in one study is sometimes similar or even identical to one proposed in another study. For instance, the ‘world mandate role’ proposed by Birkinshaw & Morrison (1995) is analogous to the ‘strategic leader’ role proposed
by Bartlett & Ghoshal (1986), the ‘active’ role in Jarillo & Martínez (1990), or the ‘integrated player’ role in Gupta & Govindarajan (1991).

More interestingly, some authors have gone beyond simply providing a typology, and have empirically tested how affiliates with different roles are associated with different outcomes. Gupta & Govindarajan (1994), for example, examine the extent to which affiliates with different roles differ in their abilities for autonomous initiatives. Harrigan (1985) explored the extent to which affiliate roles affect the barriers to exiting the market. Other studies focused on performance outcomes arising from the lateral linkages between different affiliate types and their sister affiliates (Birkinshaw & Morrison, 1995), entry mode choices (Anand & Delios, 1997), and intra-firm knowledge transfers (Ambos, Ambos & Schlegelmilch, 2006).

Importantly in the context of our study, another strand of this literature has focused on the role of affiliates within MNE global value chains. Porter (1985), for example, decomposed value chains into primary and supporting activities, whilst Harrigan (1985) differentiated between upstream and downstream units. More recently, Rugman, Verbeke & Yuan (2011) classified affiliates as innovation-, production-, or sales & administration-based depending on their value chain activities. Mudambi (2008), using Apple’s fragmentation of its global value chain activities as an example, categorized the strategic roles of affiliates into upstream activities (e.g. design, R&D and component production), as well as middle-end/horizontal activities (e.g. manufacturing), and downstream activities (e.g. brand management, marketing, sales and after-sales service). A similar classification has also been employed by Mudambi & Puck (2016), Verbeke & Asmussen (2016), Verbeke, Kano & Yuan (2016) and Hernández & Pedersen (2017).

In order to further explore the issue of relatedness, and hence the knowledge shared between the MNE parent and the affiliate, we explore the extent to which divestment decisions are contingent upon the roles which foreign affiliates fulfil within their parents’ GVCs. We classify the affiliates to four mutually exclusive role types. The first type consists of unrelated
affiliates: i.e. affiliates that operate in sectors that are separate from those of their parent firms. The second type refers to horizontal affiliates, which are those that undertake similar activities to those of their parent firms. The third type is labelled upstream affiliates, and these are mainly engaged in research and development (R&D), parts and components production, and the provision of the intermediate inputs. The fourth and final type is downstream affiliates, whose activities embrace marketing and distribution. The latter three types may collectively be referred to as related affiliates, whilst upstream and downstream affiliates are often classified as vertical affiliates – see Figure 1.

[Insert Figure 1 here]

2.3 Hypotheses

In this section, we propose six hypotheses regarding the determinants of parents’ divestment decisions of their foreign affiliates. The first two hypotheses echo the familiar findings in the extant literature regarding the effects of parent performance and affiliate performance. However, the final four hypotheses provide new insights into how the likelihood of divestment depends upon the strategic roles played by the affiliates in their parents’ GVCs.

The first hypothesis focuses on the financial performance of the parent company. Numerous empirical studies (see, for example, Duhaime & Grant, 1984; Markides, 1992; Johnson, Hoskisson & Hitt, 1993; Zuckerman, 2000; Haynes, Thompson & Wright, 2003; Damaraju, Barney & Makhija, 2015; Blake & Moschieri, 2016) have reported an inverse relationship between parent performance and the likelihood of affiliate divestment, whilst only a few report an insignificant or positive relationship - see Kolev (2016) for a recent survey. An inverse relationship would be expected as strongly performing firms are unlikely to question their previous investment decisions and hence will maintain their affiliate portfolios (Sanders, 2001). In contrast, poorly performing firms will come under pressure from their shareholders and creditors (Duhaime & Grant, 1984), and will be inclined to restructure their business
portfolio by searching for new markets or by selecting existing businesses from which to divest (Chang, 1996). A good example is that of Lanxess AG, a German chemical manufacturing company. Lanxess’s sales and operating profit had been declining between 2014 and 2017 (Orbis, 2020). Subsequently in 2018, they announced the divestment of their 50% stake in Arlanxeo – their joint venture affiliate in The Netherlands. Arlanxeo produces high performance rubber which is used in various industries such as automobiles, construction and oil and gas. Lanxess claims that the divestment would allow them to focus on ‘speciality’ chemicals (in line with their strategy) and to make subsequent acquisitions in that area (Lanxess, 2018). Our first hypothesis is thus:

*Hypothesis 1: Foreign affiliates are more likely to be divested, the poorer is the financial performance of their MNE parents.*

The second hypothesis focuses on the financial performance of the affiliate. Weak affiliate performance will not be tolerated indefinitely by parent firms (Boddewyn, 1979) as they put a strain on financial resources and are value-destroying for the parent. Such affiliates are thus likely to be singled out for divestment, unless there are obvious alternative strategies for improvement. Numerous empirical studies (see, for example, Harrigan, 1981; Duhaime & Grant, 1984; Zuckerman, 2000; Shimizu & Hitt, 2005; Shimizu, 2007; Berry, 2013) have reported an inverse relationship between affiliate performance and the likelihood of divestment by the parent firm, whilst only a few (Bergh, 1997; Damaraju, Barney & Makhija, 2015) report an insignificant or positive relationship. For example, the US-based automobile firm Ford’s divestment from Jaguar Landrover (JLR) in the UK has been attributed to a continued poor profitability of Jaguar over several years (Peston, 2007). While Ford divested from JLR completely due to Jaguar’s poor performance (eventually, selling it off to Tata Motors), it continues to operate other manufacturing affiliates/operations in the UK to provide components for JLR (Timmons, 2008). Our second hypothesis is thus:
Hypothesis 2: Foreign affiliates are more likely to be divested, the poorer is their own financial performance.

The third hypothesis focuses on the degree of relatedness between the parent and the affiliate, or, alternatively, the lack of relatedness as would be apparent in parents and affiliates operating in distinct and unconnected industrial sectors, on the relationship between parent performance and affiliate divestment. The knowledge-based view of the firm draws attention to the knowledge and strategic resources and capabilities shared between affiliates and their parents, such as physical facilities, capital structure, human resource profiles (Harrigan, 1981; Chang, 1996; Wan, Chen & Yiu, 2015), technological capabilities and marketing intensity (Duhaime & Grant, 1984; Chang & Singh, 1999; Capron, Mitchell & Swaminathan, 2001). However, affiliates operating in unrelated sectors may find it difficult to absorb incoming knowledge and best practice from their parents (Szulanski, 1996; Szulanski, Ringov & Jensen, 2016), due to their unfamiliarity with parent knowledge, especially if it is complex, tacit and path-dependent (Cohen & Levinthal, 1990; Bresman, Birkinshaw & Nobel, 1999). Parent firms experiencing financial difficulties are likely to be under pressure from their shareholders and creditors to restructure their portfolios and focus attention on their core businesses (Hamilton & Chow, 1993; Zuckerman, 2000; Haynes, Thompson & Wright, 2003; Chen & Guo, 2005), and to divert unattractive or unrelated assets to better opportunities (Hamilton & Chow, 1993; Chen & Guo, 2005; Berry, 2010; 2013). Such parents may opt first to divest unrelated affiliates, not only because the parents are less familiar with those affiliates but also because their divestment will have less impact on the remaining operations within the parents’ GVCs. Our third hypothesis is thus:

Hypothesis 3: The impact of lower MNE parent financial performance on the (increased) likelihood of divestment is greater for unrelated foreign affiliates than for related foreign affiliates.
The fourth hypothesis again focuses on the degree of relatedness between the parent and the affiliate, but emphasises its moderating impact on the relationship between affiliate performance and divestment. In principle, parent firms will seek to aid their foreign affiliates through difficult times by transferring internally their knowledge and resources to overcome barriers and difficulties, particularly when intermediate markets are missing (Buckley & Casson, 1976; Tallman & Li, 1996). But it may be difficult for parents to find effective remedial solutions to improve the performance of unrelated affiliates as they have different resources and capabilities, and are thus not only less likely to benefit from parent firm-specific advantages but will also have a lower capacity to absorb, assimilate and utilise parent knowledge (Bresman, Birkinshaw & Nobel, 1999; Song, Almeida & Wu, 2003). Our fourth hypothesis is thus:

**Hypothesis 4:** The impact of lower affiliate financial performance on the (increased) likelihood of divestment is greater for unrelated foreign affiliates than for related foreign affiliates.

We further suggest that although related affiliates are less likely to be divested when performing poorly, this offers an incomplete picture. The fifth hypothesis explores the notion of relatedness in more depth by differentiating between horizontal and vertical affiliates. Several authors (see, for example, Harrigan, 1985; Woo, Willard & Daellenbach, 1992; Song, 2014; Damaraju, Barney & Makhija, 2015) have pointed out that the strategic importance of an affiliate increases when it has a large proportion of intra-firm sales or purchases, or when it is intimately involved in the value chains of its parent and/or other affiliates. Horizontal and vertical affiliates, however, play different roles in the GVCs of their MNE parents. MNE knowledge is often complicated (Song, Almeida & Wu, 2003) and tacit (Bresman, Birkinshaw & Nobel, 1999), and a key consideration is the capacity of the foreign affiliate to absorb,
assimilate and exploit the incoming knowledge from its parent (Gupta & Govindarajan, 2000; Cohen & Levinthal, 1990).

Horizontal affiliates engage in a wide range of activities which are similar to their parent firms, and they share fairly similar skills and technologies. In comparison to vertical affiliates, horizontal affiliates share with their parents many resources and capabilities (Harrigan, 1981; Chang, 1996; Capron, Mitchell & Swaminathan, 2001; Wan, Chen & Yiu, 2015) and this shared expertise may decrease the likelihood of affiliate divestment. Chang (1996), for example, finds that the greater the similarity between the affiliate’s business and its parent-MNE’s core operations, the less likely that the overseas operation will be divested. Ang, de Jong & van der Poel (2014) reached a similar finding that when the CEOs of parent firms are familiar with the activities of their affiliates, they are less likely to divest these assets. Berry (2013) reports a low likelihood of divestment when the foreign affiliate has a great extent of product relatedness with the MNE parent.

In contrast, vertical affiliates are often assigned specialised roles, such as sourcing materials, producing parts or components, product design and development, marketing or selling products (Dunning & Lundan, 2008; Buckley & Strange, 2015). The example of Arlanxeo cited previously is a case in point. Arlanxeo (sold off by its 50% parent - Lanxess in 2018) focused on producing and selling synthetic rubber to a variety of industries, and was thus vertically integrated with Lanxess, who produces and markets a variety of speciality chemicals, additives and plastics. Such vertical affiliates may thus experience greater difficulty in understanding and assimilating parent knowledge (Szulanski, 1996) than horizontal affiliates who mimic parent firm operations. The knowledge flows from parents to their horizontal affiliates are thus greater than to their vertical affiliates (Driffield, Love & Yang, 2016), and this influences the potential for remedial action when affiliate performance declines and hence the likelihood of affiliate divestment. Our fifth hypothesis is thus:
Hypothesis 5: The impact of lower affiliate financial performance on the (increased) likelihood of divestment is greater for vertical foreign affiliates than for horizontal foreign affiliates.

The sixth hypothesis further explores more deeply the notion of relatedness within vertical affiliates by differentiating between upstream and downstream affiliates. Upstream affiliates have the main focus of sourcing raw materials for the final production of MNEs, or engaging with the development of technological capability and know-how (Mudambi, 2008). These upstream activities are not purely driven by profit generation (Hanson, Mataloni & Slaughter, 2005; Mudambi & Swift, 2014). Upstream affiliates are less likely to achieve economies of scale and scope due to the narrow nature of their activities (Hanson, Mataloni & Slaughter, 2005), and the outcome of these activities such as research and development is uncertain (Mudambi & Swift, 2014). However, research shows that affiliates that specialize in producing intermediate inputs and sourcing raw materials are likely to be a valuable source of knowledge to the parent MNEs. Due to this they also have more bargaining power and receive more attention from headquarters, as these affiliates are important for international production flows of MNEs (Driffield, Love & Yang, 2016). Affiliates that undertake design activities in the local market play an important role in the value chain, and the necessity for an MNE to develop new products and to modify process design enhances the strategic importance of these R&D affiliates in the value chain of corporations (Lawrence & Lorsch, 1967).

In contrast, downstream affiliates are typically recipients of their parents’ intangible assets and may have very limited understanding (Williams, 2007) and control over these assets. Rather, downstream affiliates typically gather local market knowledge, including product-market segmentation, supplier relationships, competition analysis, customer preferences, marketing practices, and distribution channels (Shaver, Mitchell & Yeung, 1997). On the one hand, this knowledge adds value to the parent company (Dunning, 1980, 1988; Benito &
Gripsrud, 1992). On the other hand, however, downstream affiliates are driven by expanding markets and exploiting parent intangibles (Meyer, Mudambi & Narula, 2011) to achieve financial returns. Affiliates with limited control over firm-specific assets will have very limited power in the parent-affiliate bargaining process (Mudambi & Navarra, 2004). The parent company may therefore assign more attention and resources to upstream affiliates relative to downstream affiliates, and also judge upstream affiliates to be more critical to their future prospects. Our sixth and final hypothesis is thus:

Hypothesis 6: The impact of lower affiliate financial performance on the (increased) likelihood of divestment is greater for downstream foreign affiliates than for upstream foreign affiliates.

Figure 2 provides an overview of the model to be estimated, highlighting the hypothesized relationships and the control variables

[Insert Figure 2 here]

3 Data and Methodology

In this section, we first explain how the dataset was assembled for use in the empirical analysis. We then discuss how we have operationalized the strategic roles for the foreign affiliates, explicate the regression model and the estimation methodology, summarize the explanatory variables and their expected impacts, and present some descriptive statistics.

3.1 The Dataset

The dataset used for the empirical analysis was compiled from Bureau van Dijk’s Orbis and Zephyr databases: the firms within the two databases may be linked as they have common identification numbers2. The Orbis database provides detailed financial information on firms

2 Both databases are increasing used in international business research. See, for example, Mohr et al (2018) and Sutherland et al (2020).
across the globe, and also indicates the status of each affiliate: this may be used to identify whether an affiliate has exited from a foreign market as a result of closure. Zephyr is a database of mergers and acquisitions (M&A), providing information on the names (and identification numbers) of the acquirer and the target firm in each acquisition deal. This allows us to identify those affiliates which have been divested by their parent firms. We can thus classify affiliates as either exiting or surviving in any given year.

The compilation of the dataset involved three steps. In the first step, we listed all the manufacturing parents who had divested an affiliate during the 2004-16 period, and then identify all foreign affiliates of these manufacturing parents. This gives us an initial sample including 2,774 parents and 26,652 foreign affiliates. In the second step, following Berry (2013), we excluded those affiliates whose parent firm had an inactive status (e.g. as a result of bankruptcy or liquidation). This reduced the sample to 2,538 parents and their 26,382 foreign affiliates. In the third step, we cleaned the dataset of observations with missing data on the variables in the empirical model. The resultant dataset was an unbalanced panel, covering a total of 449 parent companies from 42 home countries and 7,254 of their foreign affiliates from 78 host countries. The dataset included 30,121 observations, and there were 614 divestments. The dataset potentially includes some affiliates that are special purpose entities (SPEs) located in tax havens and/or offshore financial centres. As we explain in detail in section 5, we considered different ways of identifying such SPEs and ran robustness tests omitting them from the dataset.

### 3.2 Affiliate Strategic Roles

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3 We only considered affiliates in which one or more foreign manufacturing parent firms held equity stakes of at least 25% on the grounds that such a shareholding threshold allows the parent to have significant influence over the affiliate and that the affiliate is likely to have significant strategic role within the parent’s GVC. Contractor et al (2016) use a similar threshold. We re-ran the empirical analysis using only majority-owned subsidiaries, and the results were largely unchanged. This suggests that the results are not distorted by the inclusion of minority-owned affiliates.
We classify the affiliates into one of four categories: horizontal; upstream; downstream; and unrelated.

- Horizontal affiliates: affiliates are classified as horizontal if they share the same 3-digit NACE code as their parent firm.

- Upstream affiliates: may be engaged in sourcing raw materials, manufacturing parts or components for final production, or design and research. Affiliates are classified as upstream if their primary NACE industries count for more than 5% of the total intermediate inputs of the parent firms’ industries. In addition, all affiliates engaged in scientific R&D (NACE industry code 72) are classified as upstream.

- Downstream affiliates: affiliates are classified as downstream if their primary activities are in retail and wholesale trade (NACE codes 45, 46 and 47). In addition, all affiliates engaged in advertising and the market research (NACE code 73) are classified as downstream.

- Unrelated affiliates: all affiliates that are not included in the above three categories are classified as unrelated.

### 3.3 Model Specification

Following the extant literature (Chang, 1996; Zaheer & Mosakowski, 1997; Shimizu, 2007; Belderbos & Zou, 2009; Berry, 2013), we use a Cox proportional hazards model to explore the determinants of affiliate divestment. Following the previous literature (e.g. Haynes, Thompson

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4 For instance, the industries that supply significant inputs to the motor vehicle industry are: (1) fabricated metal products, (2) rubber and plastic products, (3) other basic metals and casting, (4) basic iron and steel, (5) machinery and equipment, (6) petrochemicals, (7) computer, electronic and optical products, (8) electrical equipment, (9) glass, refractory, clay, other porcelain and ceramic, stone and abrasive products. Any affiliate which produces any of these products is classified as an upstream affiliate of a parent firm in the motor vehicle industry.

5 The appropriate intermediate inputs for any industry are assessed using the input-output tables made available by the UK Office for National Statistics. This implicitly assumes that the same inputs are used in similar proportions for the production of given outputs in every parent firm in every country. We also ran the analysis using a 1% threshold as a robustness check.
& Wright, 2003; Berry, 2013; Blake & Moschieri, 2016), all the explanatory variables are entered with a one-year lag\(^6\). The general form of the model is depicted in equation (1):

\[
\begin{align*}
  h_i(t) &= h_0(t) \alpha_i \exp(\beta_1 \text{ROS}_{t-1}^P + \beta_2 \text{Role}_i^A + \beta_3 \text{Role}_i^A \cdot \text{ROS}_{t-1}^A) \\
  &\quad + \gamma X_i^A + \tau Z_j^P + \rho C_m + \epsilon_t
\end{align*}
\]

where \(h_i(t)\) = the hazard rate at time \(t\) for affiliate \(i\) (the divestment decision)

\[h_0(t) = \text{baseline hazard rate at time } t\]

\[\text{ROS}_j^P = \text{performance of parent firm } j \text{ in period } t - 1\]

\[\text{ROS}_i^A = \text{performance of affiliate } i \text{ in period } t - 1\]

\[\text{Role}_i^A = \text{the role of affiliate } i \text{ in the GVC of its parent (see section 3.2)}\]

\[X_i^A = \text{vector of control variables for affiliate } i \text{ in period } t - 1\]

\[Z_j^P = \text{vector of control variables for parent } j \text{ in period } t - 1\]

\[C_m = \text{vector of control variables for country } m \text{ in period } t - 1\]

\[\epsilon_{i,t} = \text{disturbance term}\]

\[\beta_1, \beta_2, \beta_3, \beta_4, \gamma, \tau, \text{ and } \rho \text{ are the coefficients to be estimated}\]

Some divested affiliates share the same parent firm, and hence there may be some uncaptured or unobservable firm effects that lead a parent to make more than one divestment: i.e. some divestment events are not independent. In line with existing divestment studies (e.g. Berry, 2013), we include a firm-specific frailty term \([\alpha_i^P]\) to model within-group correlation. The log (frailty) is analogous to random effects in standard linear regression models (Berry, 2013; Gutierrez, 2002; STATA, 2017). We also include business cycle effects \(\gamma_t\) in the model. The language and geographical distance variables are time-invariant. Detailed definitions for all variables, together with their means and standard deviations are presented in Table 1.

[Insert Table 1 here]

### 3.4 The Dependent Variable

The dependent variable in the regression model is a dummy variable that takes a value of zero when an affiliate is owned by its MNE parent, and one when the parent divests its equity stake.

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\(^6\) Apart from the dummy variable capturing the impact on foreign affiliate divestment of the financial crisis in 2007-09.
The predicted value of the dependent variable is thus the relative hazard rate that an affiliate with given (affiliate, parent and country) characteristics will be divested that year. The values of the estimated coefficient estimates measure the marginal impacts of unit increases in the explanatory variables on the probability of divestment: hence negative coefficients suggest a reduction in the likelihood, whilst positive coefficients suggest an increase in the likelihood.

### 3.5 The Independent Variables

The three key independent variables are parent performance \([ROSP_{j,t-1}]\), affiliate performance \([ROSA_{i,t-1}]\), and affiliate role \([RoleA_i]\). Numerous alternative measures of performance are available, and we use return on sales (ROS\(_t-1\)) in the previous year\(^7\). Return on sales is defined as net profit before tax divided by sales. A market performance indicator (e.g. Tobin's Q) is not used as data are not available for most of the countries covered in the analysis. The values for the affiliate role variable depend upon the analysis in the particular regression model: i.e. whether the comparison is between related and unrelated affiliates; upstream and downstream affiliates, or vertical and horizontal affiliates.

### 3.6 The Control Variables

There are three sets of control variables, to account for affiliate-level, parent-level and country-level heterogeneity. The affiliate-level control variables \([XA_{i,t}]\) include age, total assets, and the debt-to-equity ratio. First, it is expected that older affiliates, who have more experience in the host country, are less likely to be divested (Berry, 2013). Affiliate age is measured by the number of years the affiliate has been established. Second, divesting a large affiliate is more complicated and has a bigger impact compared to the divestment of a small affiliate (Duhaime & Baird, 1987; Chang, 1996; Berry, 2013). We therefore expect firm size (as measured by total

\(^7\) We also carried out robustness tests using return on assets (ROA) as the performance measure. The results are shown in Table 6.
assets) to be negatively related to the likelihood of divestment. Third, the debt-to-equity ratio proxies the level of risk carried out by the affiliate (Shimizu, 2007; Kafouros & Aliyev, 2016; Hoskisson, Johnson & Moesel, 1994). We expect that a high level of leverage is likely to increase the likelihood of affiliate divestment.

The parent-level control variables \( Z_{j,t}^P \) include experience in the host country and the debt-to-equity ratio. We expect parents with more experience of the affiliate host country to be more committed to that country and also to be less inclined to divest an underperforming affiliate (Contractor, Kundu & Hsu, 2003; Pantzalis, 2001; Berry, 2013). Experience is measured by the number of affiliates the parent company has established in the host country where the affiliate is located. Parents with high levels of debt are more likely to feel the need to realize liquid funds, and hence divest their overseas assets (Hoskisson, Johnson & Moesel, 1994; Haynes, Thompson & Wright, 2003).

The country-level control variables \( C_{m,t} \) include host country size and growth rate (Song, 2014; Blake & Moschieri, 2016), as measured by GDP (at purchasing power parity) and GDP growth respectively. Other control variables include a common language dummy variable (Berry, 2013), the geographical distance between the parent home and the affiliate host countries (Berry, 2013), and the control for corruption index in the host country (Cuervo-Cazurra, 2006; Konara & Shirodkar, 2018). The economic development of the host country will influence both past affiliate performance and the future prospects (Berry, 2013), and is expected to be negatively related to the likelihood of divestment. Different languages used in home and host countries will increase the complexities of communication and coordination between parents and their affiliates and also increase the barriers and difficulties in effectively transferring knowledge (Harzing & Feely, 2008; Berry, 2013). Affiliates may suffer from liabilities of foreignness (Zaheer & Mosakowski, 1997) in host countries, and greater geographical distance between parents and affiliates increases coordination costs (Berry, Guillén & Zhou, 2010; Lu & Beamish, 2004), exacerbates information asymmetries, and
attenuates the beneficial impact of parent ownership advantages on affiliate performance. Weak institutions in the host country will have a negative impact on affiliate operations and performance (North, 1990): we include one measure of institutional quality (i.e. the level of corruption control) and expect this to be inversely related to the likelihood of divestment (Cuervo-Cazurra, 2006). Finally, we include a dummy variable (CRIS) to capture the impact of the 2007-9 financial crisis. We expect lower likelihoods of divestment in these years as acquisitions by potential buyers will be constrained by scarce external financing (Duchin, Ozbas & Sensoy, 2010).

3.7 Descriptive Statistics

Seventy two percent of the affiliates in the dataset\(^8\) are classified to sectors related to their parents, with the remaining 28% operating in unrelated sectors – see Table 2. Of the 5,307 related affiliates, 1,427 are classified as horizontal, 1,353 as upstream and 2,527 as downstream. The divestment rate in the full sample is 8.31%, but the rate is 10.63% for unrelated affiliates and only 7.41% for related affiliates. The divestment rates are higher for horizontal (9.25%) than for vertical affiliates (6.73%), and for upstream (7.32%) than for downstream affiliates (6.41%).

[Insert Table 2 here]

Table 3 presents the average performance of both affiliates and parent companies across the different affiliate role types. On average, affiliates tend to have lower performance than their parent companies. Furthermore, there is a clear pattern showing that divested affiliates have significantly worse performance (2.69% vs. 5.84%) than non-divested affiliates, and that parents divesting affiliates had worse performance (5.1% vs. 8.18%) than those retaining their

\(^8\) A small number of the affiliates have multiple parents, hence the number of parent-affiliate linkages (7386) is larger than the number of affiliates (7254).
affiliates. These performance differences can be observed across all the different affiliate role types.

[Insert Table 3 Here]

In Table 4, we present the correlation matrix of the key variables included in the analysis. The correlation coefficients between affiliate characteristics, parent company characteristics and country variables range between -0.27 and 0.27, suggesting that there are no major issues with multicollinearity.

[Insert Table 4 Here]

4 Empirical Results

The regression results are presented in Table 5. For each model, the predicted value of the dependent variable is the relative hazard rate as given by \( \frac{h_i(t)}{h_0(t)} \). It is not possible to calculate the exact likelihoods of affiliate divestment because the baseline hazard rate is unknown, but the estimated coefficients reflect the marginal effects on the likelihood of divestment. Model (1) in Table 5 includes only the two performance variables and the control variables. The estimated coefficient of parent firm performance (\( \beta = 0.031, p < 0.01 \)) is negative as expected and highly significant, supporting hypothesis H1. Affiliates are significantly more likely to be divested if their parent firms are performing poorly: a one percentage point fall in ROS\(^P\) leads to a 0.03 increase in the likelihood of divestment. This result is consistent with several prior studies (Duhaime & Grant, 1984, Hamilton & Chow, 1993, Zuckerman, 2000, Haynes, Thompson & Wright, 2003; Damaraju, Barney & Makhija, 2015).

The estimated coefficient of affiliate performance (\( \beta = 0.012, p < 0.01 \)) is also negative as expected and highly significant, supporting hypothesis H2. Poorly performing affiliates are more likely to be divested than better performing affiliates: a one percentage point fall in ROS\(^A\) leads to a 0.01 increase in the likelihood of divestment. This result is consistent with several past studies such as Harrigan (1981), Zuckerman (2000) and Kolev (2016). The sizes of these
effects, however, depend on the strategic roles of the affiliates, as will be discussed further below. As regards the control variables, affiliate size ($\beta = -0.248, p < 0.01$), affiliate age ($\beta = -0.005, p < 0.05$), and parent experience in the host country ($\beta = -0.032, p < 0.01$) all reduce significantly the likelihood of affiliate divestment. In contrast, the likelihood of divestment is positively and significantly related to the size of the market ($\beta = +0.126, p < 0.01$) in the affiliate’s host country. Blake & Moschieri (2016) report a similar finding, which is likely to be due to the greater ease of finding a buyer for the affiliate in a larger market. Finally, the likelihood of divestment is significantly higher when the affiliate host country and the parent home country share common language ($\beta = +0.442, p < 0.01$). Again, this is likely to be due to the greater ease of finding a buyer when there are no language impediments. In addition, we find that the financial crisis reduced the likelihood of foreign affiliates being divested, as limited external financing (Duchin, Ozbas & Sensoy, 2010) reduced corporate interest in mergers and acquisitions.

[Table 5 about here]

In models (2) – (4), we compare the likelihoods of divestment for affiliates with different strategic roles. To aid interpretation, we plot the estimated relationships between performance (on the x-axis) and the relative hazard rate (on the y-axis) – see Figures 3a-3d. In Figure 3a, we focus on the performance of the parent firm ($\text{ROS}^P$), and consider a range of values between -4% (≈ mean $\text{ROS}^P - 1.5$ standard deviations) and +20% (≈ mean $\text{ROS}^P + 1.5$ sd). In Figures 3b-3d, we focus on the performance of the foreign affiliates ($\text{ROS}^A$) and consider the range of values between -8% (≈ mean $\text{ROS}^A - 1.5$ sd) and +20% (≈ mean $\text{ROS}^A + 1.5$ sd).

[Figures 3a - 3d about here]

In model (2), we distinguish between the related and the unrelated affiliates in the full sample. It is clear that, when the parent is performing well (say $\text{ROS}^P \approx 20\%$) then both related and unrelated affiliates have low and similar likelihoods of divestment – see Figure 3a. As parent performance falls, then the likelihood of related affiliate divestment rises ($\beta_{\text{REL}} = -0.024$)
but the rate of unrelated affiliate divestment rises twice as quickly ($\beta_{\text{UNREL}} = -0.050$): the differential rate ($\beta_{\text{REL}} - \beta_{\text{UNREL}} = +0.026$, $p < 0.01$) is highly statistically significant. H3 is thus supported. Related affiliates that are performing well have a low likelihood of divestment, whilst unrelated affiliates have a higher likelihood – see Figure 3b. As affiliate performance falls, both likelihoods increase but at similar rates ($\beta_{\text{REL}} - \beta_{\text{UNREL}} = -0.004$, ns). Thus, H4 is not supported.

In model (3), we dig deeper into the relationship between related affiliate performance and the likelihood of divestment by distinguishing between horizontal and vertical affiliates. We first note that divestments are more prevalent amongst the horizontal affiliates in the sample than amongst the vertical affiliates – see the descriptive statistics in section 3.7. However, it is apparent that the likelihood of divestment of vertical affiliates increases significantly as their performance declines ($\beta_{\text{VER}} = -0.023$, $p < 0.01$) – see Figure 3c. Meanwhile, the likelihood of divestment of horizontal affiliates is higher seems to depend little upon performance ($\beta_{\text{HOR}} = 0.000$). The difference in these marginal effects ($\beta_{\text{HOR}} - \beta_{\text{VER}} = +0.023$, $p < 0.01$) is statistically very significant. Thus, H5 is supported.

In model (4), we dig deeper into the relationship between vertical affiliate performance and the likelihood of divestment by distinguishing between upstream and downstream affiliates. Again we note that divestments are more prevalent amongst the upstream affiliates in the sample than amongst the downstream affiliates – see the descriptive statistics in section 3.7. However, whilst the likelihood of upstream affiliate divestment increases ($\beta_{\text{UP}} = -0.013$) as performance declines, the likelihood of downstream affiliate divestment increases ($\beta_{\text{DOWN}} = -0.033$) at a much faster rate – see Figure 3d. The difference in these marginal effects ($\beta_{\text{UP}} - \beta_{\text{DOWB}} = +0.020$, $p < 0.01$) is statistically very significant. Thus, H6 is supported.

Finally, it is worth pointing out that the estimated coefficients and their levels of significance are robust across all four models, notwithstanding the different samples and model specifications. The affiliate age variable loses statistical significance in model (4) though the
size of the coefficient is similar to those in the other three models. The values of theta reflect the shared frailty of the parent firms in the sample (Gutierrez, 2002; Berry, 2013): the values for all four models were highly significant (p < 0.01) using a likelihood ratio test, confirming the wisdom of estimating a frailty model to control for unobserved heterogeneity.

5 Robustness Analysis

To verify the robustness of our findings, we used an alternative measure of performance - return on assets (ROA) - and re-estimated all four models. The results are reported in Table 6, and are broadly in line with those shown for our main analysis. In model (1), we find that the likelihood of divesting a foreign affiliate increases both when the affiliate’s performance is lower (-0.016, p < 0.01) or when the parent company’s performance is lower (-0.034, p < 0.01). In model (2), we find that the likelihood of unrelated affiliate divestment is higher at lower levels of parent performance, but that lower affiliate performance has an insignificant effect. In model (3), we find that vertical affiliates are more likely to be divested than horizontal affiliates when affiliate performance declines. In the last model, the divestment likelihood of downstream affiliates increases more than upstream affiliates when their performance declines, but the difference is not significant.

[Table 6 about here]

We also re-estimated all four models using a reduced sample from which (196) observations with extreme reported values of performance (ROA > 0.6) were excluded from the analysis. The impact of low affiliate performance on the likelihood of divestment is again significantly different in the case of upstream and downstream affiliates, as was found in our main regression analysis\(^9\).

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\(^9\) The results are not reported but can be provided on request.
Finally, we considered whether a significant number of affiliates in our dataset might be special purpose entities (SPEs)\(^\text{10}\), defined (OECD, 2008: 100) as affiliates that “that have little or no employment, or operations, or physical presence in the jurisdiction in which they are created by their parent enterprises which are typically located in other jurisdictions (economies). They are often used as devices to raise capital or to hold assets and liabilities and usually do not undertake significant production.” Examples of such SPEs (OECD, 2008: 100) would include “financing subsidiaries, conduits, holding companies, shell companies, shelf companies and brass-plate companies.” Many MNEs use SPEs located in offshore financial centres and tax havens (Jones & Temouri, 2016; Sutherland et al, 2020). The inclusion of significant numbers of SPEs in our dataset might bias our findings, as MNE parents’ decisions about their retention/divestment might well depend upon different factors than those discussed above.

The first point to note is that such SPEs would be classified as unrelated affiliates in our analysis given that the parent MNEs are all manufacturing firms. Any bias would thus only apply to our comparison of related and unrelated affiliates, but not to our comparisons between the related affiliates with different strategic roles in their parents’ value chains. Nevertheless, we also looked at two ways of excluding SPEs completely from the dataset, though this was not straightforward as SPEs are not explicitly identified as such in the Orbis database. One option was to exclude all SPEs located in countries designated as offshore financial centres or tax havens. But this is problematic both because many affiliates in such countries may not be SPEs, and also because there is no definitive country classification of offshore financial centres and tax havens (Haberly & Wójcik, 2015; Jones & Temouri, 2016; Sutherland et al, 2020) and SPEs may also be found in other jurisdictions (OECD, 2008: 101). As Sutherland et al (2020: 353) comment, excluding affiliates by virtue of their location would be a “blunt tool”. The second option was to exclude all affiliates classified to NACE codes 6420 (investment holding

\(^{10}\) We are grateful to one of the anonymous reviewers for bringing this to our attention.
companies), 6499 (financial services except insurance and pension funding), 7010 (head offices), 7022 (business and other management consultancy activities), and 8299 (business services). This resulted in 762 affiliates being excluded from the dataset. We estimated all the models reported in section 4 above using this reduced dataset but there were no marked changes to the empirical results\textsuperscript{11} or to the results of our hypothesis tests.

6 Discussion and Conclusions

The main contribution of this paper is to explain theoretically and demonstrate empirically how affiliate strategic roles within their parent firms’ GVCs may have a contingent effect on the likelihood of their divestment when either the MNE or the affiliate is faced with poor performance. Our results are in line with the extant literature that the likelihood of affiliate divestment rises as, on the one hand, parent performance worsens and, on the other hand, as affiliate performance worsens. But we provide a more nuanced analysis of these relationships. When parent performance declines, unrelated affiliates are more likely to be divested than related affiliates. As affiliate performance deteriorates, we show that the likelihood of divestment increases more strongly for vertical affiliates in comparison to horizontal affiliates, and for downstream affiliates in comparison to upstream affiliates. Five of our six hypotheses are supported.

Theoretically, our findings suggest that the potential for knowledge sharing between foreign affiliates and the MNE parent is an important consideration in any divestment decision (Gupta & Govindarajan, 1991; 1994; 2000; Mudambi & Navarra, 2004). The relatedness of the affiliate to the parent is an important attribute in this context, as related affiliates are more easily able to share knowledge and various other resources that may be valuable to the parent. We explore the notion of relatedness further by considering the alternative strategic roles of foreign affiliates within their parents’ GVCs. We argue that, even among related affiliates, horizontal

\textsuperscript{11} These results are available on request from the authors.
affiliates are less likely to be divested than vertical affiliates due to their greater levels of knowledge relatedness to the parent. Our findings complement those of Tan & Sousa (2018) who recently suggested that lower levels of intangible resource relatedness between the MNE parent and the affiliate led to a greater propensity of affiliate divestment when performing poorly. Furthermore, such intangible resources are more likely to be developed among upstream affiliates (in our GVC typology), which we argue and find to be less likely to be divested despite poor performance as compared to downstream affiliates.

Our findings have implications for the managers of foreign affiliates and for policy-makers within the host countries. Clearly, affiliates are given a particular strategic role within their parent firms’ GVCs and cannot opt, for instance, to be upstream rather than downstream. All affiliates are vulnerable to declining parent firm performance, but this is largely out of their control. All affiliates are also vulnerable to their own declining performance, except for horizontal affiliates. We suggest that this is because horizontal affiliates mimic parent firm operations, and this facilitates remedial action – instead of divestment - when affiliate performance declines. Parent experience in the host country of the foreign affiliate also reduces the likelihood of divestment. Many governments worldwide have encouraged MNE parent firms to establish and/or invest in local affiliates, mindful of the potential positive impacts *inter alia* on employment and economic output. Participation in GVCs may also bring benefits to host countries in terms of technology diffusion, upgrading and the dissemination of international best practice. But some types of affiliates are more vulnerable to divestment than others (e.g. upstream compared to downstream), and particularly more vulnerable when their performance worsens. These considerations should be considered by policy-makers when *ex ante* encouraging foreign MNEs to invest and when *ex post* assessing the measures needed to discourage divestment during downturns. Our results clearly suggest, for instance, that poorly performing vertical affiliates are much more sensitive to falling performance than poorly performing horizontal affiliates.
Our findings also highlight several possible areas for future research on the divestment of foreign affiliates. First, our categorization of the affiliates is still very broad-brush notwithstanding it is an improvement on previous studies. It could be refined either by simply looking at more fine-sliced definitions of affiliate roles, or by considering how individual affiliates are configured within the entire GVCs of their parent MNEs (Asmussen et al., 2009; Hernández & Pedersen, 2017). This might provide a perspective on which affiliates were crucial to the operation of their patent firms, and which affiliates were more peripheral. Second, this categorization could be refined by considering the extent of parental fit with the affiliates (Goold & Campbell, 1998; Luo, 2005), and hence the value-creating potential of each affiliate for the MNE. Third, some affiliates may well be creating value for their MNEs, yet are reporting low levels of profit because their parents are engaging in transfer pricing and other “base erosion and profit-shifting” activities (Dharmapala, 2014; Cooper & Nguyen, 2020) within their GVCs in response to differential tax rates across countries. In such cases, any measure of profitability will not be a good predictor of divestment. Future research might attempt to measure the value-creating contributions of affiliates, looking beyond reported accounting measures. Fourth, we noted at the outset that firms may divest their affiliates for a number of different motives including the correction of over-diversification; to improve firm efficiency and efficacy; to free up scarce resources for opportunities elsewhere; or in response to changing market conditions. Divestment may also be effected voluntarily through various modes such as the voluntary closure of the affiliate or through the full or partial sale to another (domestic or foreign) firm (Benito, 1997), or may be involuntary through expropriation, nationalization or confiscation (Kobrin, 1980). Analysis based upon these different divestment motives and/or modes would be very interesting, but primary data collection might be required.

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12 We are grateful to one of the anonymous reviewers for pointing out this possibility.
References


Figure 1: Affiliate Strategic Roles
Figure 2: The Model for Foreign Affiliate Divestments

H1 (-): Parent performance

H2 (-): Affiliate performance

H3 (+): Related vs. Unrelated

Divestments of foreign affiliates

Control variables:
- Affiliate size
- Affiliate gearing
- Affiliate age
- Parent gearing
- Parent experience
- Shared language
- Geographical distance
- Host country financial crisis
- Host country GDP growth
- Host country GDP
- Host country corruption control
Figure 3: The effects of performance on divestment with different affiliate roles

Notes: In the figures above, the predicted values of relative hazard rates for each affiliate type use the mean values of the explanatory variables for the subsample (i.e. related or unrelated affiliates in figures 3a and 3b; horizontal and vertical affiliates in figure 3c and upstream and downstream affiliates in figure 3d) being considered.
### Table 1: Variable Definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable definition</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( ROS_{j,t-1}^P )</td>
<td>Return on sales for parent ( j ) in period ( t-1 ) (%)</td>
<td>8.00</td>
<td>8.64</td>
</tr>
<tr>
<td>( ROS_{i,t-1}^A )</td>
<td>Return on sales for affiliate ( i ) in period ( t-1 ) (%)</td>
<td>5.69</td>
<td>11.82</td>
</tr>
<tr>
<td>( ROA_{j,t-1}^P )</td>
<td>Return on assets for parent ( j ) in period ( t-1 ) (%)</td>
<td>8.76</td>
<td>13.77</td>
</tr>
<tr>
<td>( ROA_{i,t-1}^A )</td>
<td>Return on assets for affiliate ( i ) in period ( t-1 ) (%)</td>
<td>6.47</td>
<td>7.48</td>
</tr>
<tr>
<td>( REL_i )</td>
<td>Dummy variable = 1 if the affiliate and the parent are in related industries; = 0 otherwise</td>
<td>0.74</td>
<td>0.44</td>
</tr>
<tr>
<td>( HOR_i )</td>
<td>Dummy variable = 1 if the affiliate has the same 3-digit NACE code as the parent; = 0 otherwise</td>
<td>0.20</td>
<td>0.40</td>
</tr>
<tr>
<td>( DOWN_i )</td>
<td>Dummy variable if the affiliate takes inputs from the parent; = 0 otherwise</td>
<td>0.36</td>
<td>0.48</td>
</tr>
<tr>
<td>( UP_i )</td>
<td>Dummy variable if the affiliate provides inputs to the parent; = 0 otherwise</td>
<td>0.18</td>
<td>0.38</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( EXP_{j,t-1}^P )</td>
<td>The total number of affiliates established by parent ( j ) in the home country of the affiliate by the end of period ( t-1 )</td>
<td>8.73</td>
<td>19.67</td>
</tr>
<tr>
<td>( GEAR_{j,t-1}^P )</td>
<td>The debt-equity ratio of parent ( j ) at the end of period ( t-1 )</td>
<td>1.24</td>
<td>1.03</td>
</tr>
<tr>
<td>( SIZE_{i,t-1}^A )</td>
<td>The total assets of affiliate ( i ) at the end of period ( t-1 ) ($ million)</td>
<td>302.32</td>
<td>1812.32</td>
</tr>
<tr>
<td>( AGE_{i,t-1}^A )</td>
<td>The number of years since affiliate ( i ) was established (years)</td>
<td>26.91</td>
<td>20.42</td>
</tr>
<tr>
<td>( GEAR_{i,t-1}^A )</td>
<td>The debt-equity ratio of affiliate ( i ) at the end of period ( t-1 )</td>
<td>0.55</td>
<td>0.90</td>
</tr>
<tr>
<td>( GDP_{i,t-1} )</td>
<td>The size of the host country of affiliate ( i ) in period ( t-1 ), measured by GDP at purchasing power parity ($ billion)</td>
<td>2068.11</td>
<td>3110.43</td>
</tr>
<tr>
<td>( GDPG_{i,t-1} )</td>
<td>The GDP growth rate of the host country of affiliate ( i ) in period ( t-1 ) (%)</td>
<td>1.43</td>
<td>3.33</td>
</tr>
<tr>
<td>( LANG_{i,j} )</td>
<td>Dummy variable = 1 if the home country of the parent firm ( j ) and the host country of affiliate ( i ) share a common language; = 0 otherwise</td>
<td>0.14</td>
<td>0.34</td>
</tr>
<tr>
<td>( GEOG_{i,j} )</td>
<td>The distance (thousand km) between the capital city of the home country of parent firm ( j ) and the capital city of the host country of affiliate ( i )</td>
<td>4.04</td>
<td>3.99</td>
</tr>
<tr>
<td>( CORR_{i,t-1} )</td>
<td>Index score for how well corruption is under control in the host country of affiliate ( i ) in period ( t-1 ) (values range from -2.5 to +2.5)</td>
<td>0.89</td>
<td>0.93</td>
</tr>
<tr>
<td>( CRIS_t )</td>
<td>Dummy variable = 1 for 2007-09</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Table 2: Composition of the Sample by Affiliate Role

<table>
<thead>
<tr>
<th>Affiliate role</th>
<th>Number of affiliates</th>
<th>Divestment rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>Related</td>
<td>5,307</td>
<td>393 (7.41%)</td>
</tr>
<tr>
<td>Vertical</td>
<td>3,880</td>
<td>261 (6.73%)</td>
</tr>
<tr>
<td>Upstream</td>
<td>1,353</td>
<td>99 (7.32%)</td>
</tr>
<tr>
<td>Downstream</td>
<td>2,527</td>
<td>162 (6.41%)</td>
</tr>
<tr>
<td>Horizontal</td>
<td>1,427</td>
<td>132 (9.25%)</td>
</tr>
<tr>
<td>Unrelated</td>
<td>2,079</td>
<td>221 (10.63%)</td>
</tr>
<tr>
<td>All</td>
<td>7,386</td>
<td>614 (8.31%)</td>
</tr>
</tbody>
</table>

Notes: (1) There are 7254 affiliates in the sample, but a few had more than one parent holding an equity stake of 25% or more. The data in this Table relate to the 7386 parent-affiliate linkages. (2) The figures in parentheses are the divestment rates for each affiliate role type.

Table 3: Profitability of the Affiliates, by Affiliate Role

<table>
<thead>
<tr>
<th>Affiliate role</th>
<th>Average affiliate performance</th>
<th>Average parent performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>divested</td>
<td>non-divested</td>
</tr>
<tr>
<td>Related</td>
<td>3.20</td>
<td>5.84</td>
</tr>
<tr>
<td>Vertical</td>
<td>2.11</td>
<td>5.30</td>
</tr>
<tr>
<td>Upstream</td>
<td>2.16</td>
<td>5.86</td>
</tr>
<tr>
<td>Downstream</td>
<td>2.08</td>
<td>5.03</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.34</td>
<td>7.30</td>
</tr>
<tr>
<td>Unrelated</td>
<td>1.78</td>
<td>5.84</td>
</tr>
<tr>
<td>All</td>
<td>2.69</td>
<td>5.84</td>
</tr>
</tbody>
</table>

Notes: (1) Performance is measured by return on sales. (2) The significance levels of the differences are denoted as follows: * 10%; ** 5%; *** 1%.
Table 4: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>12</th>
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Notes: Significance levels are as follows: * 10%; ** 5%; *** 1%. Table 1 provides detailed definitions for each variable.
Table 5: Regression Results

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<tr>
<th>Variables</th>
<th>Model (1)</th>
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<td>Full sample</td>
<td>Related affiliates</td>
<td>Vertical affiliates</td>
</tr>
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<td>$ROS^P$</td>
<td>-0.031*** (0.005)</td>
<td>-0.050*** (0.008)</td>
<td>-0.020*** (0.007)</td>
<td>-0.023** (0.010)</td>
</tr>
<tr>
<td>$ROS^A$</td>
<td>-0.012*** (0.003)</td>
<td>-0.010** (0.004)</td>
<td>-0.023*** (0.005)</td>
<td>-0.033*** (0.007)</td>
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<tr>
<td>$REL$</td>
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<tr>
<td>$REL \times ROS^P$</td>
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<tr>
<td>$REL \times ROS^A$</td>
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<td>-0.004 (0.006)</td>
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<td>$HOR$</td>
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<tr>
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<td></td>
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<tr>
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<td>0.004 (0.015)</td>
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<td>$UP \times ROS^A$</td>
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</tr>
<tr>
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<td>-0.035*** (0.009)</td>
<td>-0.039*** (0.012)</td>
<td>-0.031** (0.013)</td>
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<tr>
<td>GEARP</td>
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<td>-0.008 (0.038)</td>
<td>-0.030 (0.046)</td>
<td>-0.056 (0.060)</td>
</tr>
<tr>
<td>$SIZE^A$</td>
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<td>-0.240*** (0.026)</td>
<td>-0.238*** (0.031)</td>
<td>-0.254*** (0.039)</td>
</tr>
<tr>
<td>$AGE^A$</td>
<td>-0.005** (0.003)</td>
<td>-0.005* (0.003)</td>
<td>-0.006** (0.003)</td>
<td>-0.004 (0.004)</td>
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<tr>
<td>$GEAR^A$</td>
<td>0.067 (0.047)</td>
<td>0.057 (0.046)</td>
<td>0.081 (0.059)</td>
<td>0.122* (0.071)</td>
</tr>
<tr>
<td>$GDP$</td>
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<td>0.114*** (0.043)</td>
<td>0.102** (0.050)</td>
<td>0.143** (0.065)</td>
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<tr>
<td>GDPG</td>
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<td>-0.013 (0.018)</td>
<td>-0.015 (0.022)</td>
<td>-0.031 (0.029)</td>
</tr>
<tr>
<td>LANG</td>
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<td>0.426*** (0.127)</td>
<td>0.514*** (0.156)</td>
<td>0.446** (0.192)</td>
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<td>0.011 (0.046)</td>
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<tr>
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<td>0.038 (0.055)</td>
<td>0.056 (0.068)</td>
<td>0.009 (0.084)</td>
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**Diagnostic statistics**

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Notes:  
(1) The predicted value of the dependent variable is the relative hazard rate – see section 3.3.  
(2) Standard errors are in brackets. Significance levels are as follows: * 10%; ** 5%; *** 1%.  
(3) The significance of the theta statistic in each model was assessed using a likelihood ratio test.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Model (1)</th>
<th>Model (2)</th>
<th>Model (3)</th>
<th>Model (4)</th>
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<td>Full sample</td>
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<td>Vertical affiliates</td>
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<td>ROA&lt;sup&gt;p&lt;/sup&gt;</td>
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<td>-0.051*** (0.011)</td>
<td>-0.021** (0.008)</td>
<td>-0.019* (0.011)</td>
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<td>-0.015*** (0.005)</td>
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<td>-0.020*** (0.006)</td>
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<td>-0.053 (0.060)</td>
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<td>-0.254*** (0.026)</td>
<td>-0.260*** (0.031)</td>
<td>-0.263*** (0.039)</td>
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<tr>
<td>AGE&lt;sup&gt;A&lt;/sup&gt;</td>
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<td>-0.004* (0.003)</td>
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<td>-0.005 (0.023)</td>
<td>-0.021 (0.029)</td>
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</table>

Notes: (1) The predicted value of the dependent variable is the relative hazard rate – see section 3.3. (2) Standard errors are in brackets. Significance levels are as follows: * 10%; ** 5%; *** 1%. (3) The significance of the theta statistic in each model was assessed using a likelihood ratio test.