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Paths and geographic scope of international expansion across industries

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ABSTRACT

In this paper, we investigate how firms' international expansion paths and their geographic scope differ across industries, with longitudinal data from 1999 to 2008 for *Fortune Global 500* firms. We first classify firms into three generic paths of international expansion based on the industry characteristics (i.e., *institution-driven*, *capability-driven*, and *linkage-driven*). We then investigate the differences in three generic international expansion paths and geographic scope with descriptive and growth curve analyses. The results show that firms operating in an institution-driven industry mostly expand their upstream activity internationally, but their geographic scope is limited. In contrast, those firms in a capability-driven industry mainly expand their downstream international activities, potentially beyond a regional geographic boundary. Firms in a linkage-driven industry likely co-ordinate both upstream and downstream activities internationally, but with larger geographic scope in downstream activities than upstream activities. Thus, firms across industries have taken distinctive paths of international expansion with substantially different geographic scope of operation.

1. Introduction

To what extent do firms change their geographic scope of international expansion over time? This is, in fact, one of the big questions that previous studies in international business and strategic management attempt to address. Indeed, two of the founding theories in international business, the internationalization process theory (Johanson & Vahlne, 1990; Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975) and the internalization/transaction cost economics theory (Hennart, 1982, 1991; Buckley & Casson, 1976; Caves, 1996; Rugman, 1981), provide useful theoretical insights and empirical evidence on this question. In particular, these theories emphasize the importance of firm resources and location factors in determining the geographic scope or the extent to which a firm internationalizes its operations across countries and regions.

However, these theories provide different answers. While the internationalization process theory suggests an incremental and evolutionary process of international expansion due largely to the necessity for adjusting to psychic distance and risks through experiential learning, the internalization/transaction cost economics theory infers that most firm-specific advantages (FSAs) or resources can be deployed only in certain countries where internalization benefits are high enough to offset costs of internalization.

We posit that this inconsistency could be partly due to the missing “industry” component in the analyses. Indeed, when recalling classic works by Vernon (1966); Knickerbocker (1973); Dunning (1980); Markusen (1984), and Helpman and Krugman (1985) that emphasize the industry life cycle, industry competition, factor endowments, and division of labor, industry characteristics are the important factors determining the motivation of internationalization and the geographic scope of firms' international expansion (Andersson, Evers, & Kuivalainen, 2014; Hitt, Tihanyi, Miller, & Connelly, 2006; Kim & Aguilera, 2015). In addition to the classic studies supporting the importance of industry factors in determining firm performance (e.g., McGahan & Porter, 1997; Misangyi, Elms, Greckhamer, & Lepine, 2006; Schmalensee, 1985), a recent study shows that industry factor explains about 10–55 percent of variance in the level of firm international diversification (or multinationality) (Rugman & Oh, 2013). Despite the importance of the “industry” component, however, international diversification research focuses primarily on the firm-level (Hitt et al., 2006), which necessitates and, thus, provides substantial opportunities for research at the industry level.

Among the industry-level studies on the scope of firms' international expansion, the theories on oligopolistic reaction and the product life cycle (Knickerbocker, 1973; Vernon, 1966) provide a useful lens to understand how industry factors affect firms' international expansion

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because they underscore the implications of entry barriers, industry maturity, and innovativeness in the process of firm internationalization. As such, we draw on the literature of firm internationalization and theories on oligopolistic reaction and the product life cycle, and take an industry-level approach to address the following two questions: *What are the generic paths of international expansion of firms operating in different industries over time? To what extent do firms change their geographic scope of international expansion over time?* To address these questions, we examine different internationalization paths and geographic scopes of large and mature firms across the industries. Specifically, we maintain that the unique characteristics of each industry necessitate different activities, which could consequently result in different paths and geographic scope of international expansion. We categorized these industries into three types: *institution-driven*, *capability-driven*, and *linkage-driven* industries based on the industry characteristics.

Examining the activities of the world's 500 largest firms and analyzing the paths and geographic scope of their international expansion during the period of 1999–2008, we find at least three interesting results. First, we find three generic paths of international expansion: (1) upstream expansion path for institution-driven industries; (2) downstream expansion path for capability-driven industries; and (3) balanced expansion path for linkage-driven industries. Second, firms with strong proprietary assets in capability-driven and linkage-driven industries expand their downstream activities beyond their home region, but less likely their upstream activities. Firms in institution-driven industries, on the contrary, expand their upstream activities, but their geographic scope is limited. Third, however, international expansion mostly took place within regional boundaries. During the 10-year period of the current study, only 20 percent of the firms in the sample demonstrated substantial changes in their geographic scope and most of the world's 500 largest firms (80 percent) have remained unchanged in terms of their nature and scope of international expansion.

2. Theory and Literature

2.1. Theories on firm internationalization

The process and extent of firm internationalization have received great attention in the international business and strategic management literature. One of the most cited studies in international strategic management is the Uppsala School's international process theory (Johanson & Vahlne, 1977). The theory maintains that firms incrementally increase their geographic scope and level of commitment (e.g., the level of ownership) through evolutionary process (Vahlne, Ivarsson, & Alvstam, 2018; Vahlne & Johanson, 2017). Indeed, studies show that firms prefer trade and investments in markets geographically, economically and culturally similar to their home country in their early stages of internationalization.¹ Johanson and Vahlne (2009) revisit their theory and replace the liability of foreignness with the liability of outsidership by accommodating the importance of network relationships and the knowledge generated from these relationships in current business. Kim and Aguilera (2015) extend the internationalization theory in a semi-globalized world where both country- and regional-level factors determine firm internationalization.

However, other studies suggest evidence on international expansion paths that differs from what internationalization process theory implies. Building on the internalization/transaction cost economics theory, Rugman and Verbeke (2004) view large multinational enterprises as mainly regional business. Rugman and his colleagues argue that, with

few exceptions, most FSAs or resources can be deployed only in countries within the home region of broad triad regions (i.e., North America, Europe, and Asia Pacific). Similarly, Ghemawat (2007) explains the difficulties in achieving both national responsiveness and economies of scale in the face of national differences, and also provides macro-level evidence (i.e., trade and foreign direct investment, FDI) supporting semi-globalization (imperfect market integration). In short, unlike Uppsala School's international process theory, Rugman and Verbeke's regional multinational theory does not imply dynamic international expansion patterns for multinational enterprises (MNEs).

We postulate that the inconsistency between the two theories could result from the missing "industry" component in the analyses. Indeed, earlier studies underscore the importance of industry characteristics in determining internationalization paths and geographic scope (Dunning, 1980; Helpman & Krugman, 1985; Markusen, 1984; Vernon, 1966, *inter alia*). In addition, various dimensions of distance between home and host countries can exert differential influences across different industries (Ghemawat, 2007). Furthermore, Johanson and Vahlne (1977) internationalization process theory has also been developed into sequential entry and mimetic behaviors of multinational firms. These developments imply that industry peers may share a similar international growth path or location choice decision (Chung & Song, 2004).

2.2. Theories on internationalization and industry

Given the importance of industry characteristics in determining internationalization paths and geographic scope, we offer that identifying international expansion paths across industries and their geographic scope can shed new light on the studies of international strategy. Before we develop our theoretical framework, it will be helpful to discuss traditional IB theories on the oligopolistic reaction and the product life cycle. In his work on oligopolistic reaction theory, Knickerbocker (1973) maintains that one of the critical factors in oligopoly industries is entry barriers, which include regulations, laws, industry-specific knowledge, and innovative products or technologies. Entry barriers are country-industry specific and can limit the number of players within the industry, making the industry more concentrated. In such an industry structure, firms' success is influenced by both the focal firms' and their rivals' strategies, which become interdependent on each other (Yu & Ito, 1988). Since firms within an oligopoly industry have a high chance of multi-point competition in international markets with their (same) rivals, firms tend to compete less aggressively with each other (Ito & Rose, 2002). Thus, in international oligopoly industries, firms follow foreign entry of either competitors' entry or first-movers' entry to maximize joint profits and maintain the oligopoly structure.

Vernon (1966) submits that the locations of the sales and production change across different stages in a product's life cycle, which characterizes the evolution of a typical industry. At the early stage of an industry, firms have a strong incentive to develop new innovative products domestically by using factors endowed and enjoy comparative advantages in international markets (Baldwin, 1971). In the introduction and growth stages, competition is more technology-oriented than price-oriented (Audretsch, 1987). As the industry evolves, firms need to meet growing demand and cost-pressures and thus compete in both product (customer-end) and cost (production-end) dimensions. In the mature and declining stages, products are standardized, and competition is more price-oriented than technology-oriented. Thus, firms in later stages of the industry will engage FDI to countries to provide cost advantages. Andersson (2004)² also suggests that the major factors affecting internationalization vary across stages in the product life

¹ Evidence can be found in O'Grady and Lane's (1996) study on Canadian MNEs; Dow's (2000) study on Australian MNEs; Child, Ng, and Wong's (2002) study on Hong Kong MNEs; Ragozzino's (2009) study on foreign acquisition activities of U.S. MNEs; and Gomez-Mejia, Makri, and Kintana's, (2010) study on family-controlled firms.

² Scholars have not distinguished product and industry life cycles. According to Klepper (1996, 1997), product life cycle may be considered an evolution of industry because innovation, which is one of the focal factors of industry life cycle, is based on individual products.

cycle. For example, in the early stage, learning from experience is a critical factor in deciding foreign expansion, but oligopolistic reactions can explain more in the later stage as the industry becomes stable. In a growing industry, firms' internal knowledge affects their internationalization decision initially. In the later stages, however, cluster and networks provide resources and legitimacy and reduce uncertainty to overcome rapid changes and intense competition in international markets. Contrary to Vernon's argument, Fernhaber, McDougall, and Oviatt (2007) suggest that firms with innovative products (i.e., born global and new venture) pursue internationalization in either early or growth stages. They argue that, in the early stages, demands increase significantly and, thus, firms can test not only responses to their products in foreign markets but also examine their overall strategy on the products.

The oligopolistic reaction theory and the product life cycle theory suggest that industry factors such as entry barriers, industry maturity, and innovativeness can influence various aspects of firm internationalization. In addition, MNEs in the same industry share common industry characteristics and environmental factors, and the extent of an MNE's international expansion can be partly embedded in the internationalization process of its industry sector (Child, 1988; Huff, 1982; Porter, 1986). Moreover, despite the differences in their theoretical insights on the process and extent of firm international expansion, the aforementioned theories concur on the role of firm resources and location factors in determining the geographic scope of an MNE.

Extant industry-level studies, however, focus primarily on specific sectors within the manufacturing industry, limiting generalizability of the findings (e.g., Graham (1978) on the manufacturing industry; Curran and Zignago (2012) on the technology sector; Ito and Rose (2002) on the tire industry). Some studies investigate multiple industries using multiple cases (Andersson & Evangelista, 2006; Andersson, 2004; Gabrielsson, Kirpalani, & Luostarinen, 2002; Monaghan & Tippmann, 2018; Yu & Ito, 1988) or qualitative analysis using firms from specific countries such as Sweden (Andersson, 2004), Norway (Grøgaard, Gioia, & Benito, 2013), Finland (Luostarinen & Gabrielsson, 2006), and the U.S. (Yu & Ito, 1988). Among these, Grøgaard, Gioia, and Benito (2013) examine the 100 large non-financial Norwegian companies and find that industry concentration, research intensity, tangibility of the products, and the existence of clusters in the domestic market are important industry factors that affect firms' internationalization decision. Yu and Ito (1988) examine the U.S. tire (oligopoly) and textile (non-oligopoly) industries and find that in oligopolistic industries a firm's FDI decision is based on its rivals' decision.

2.3. Industry characteristics and internationalization paths

Building on the foregoing discussion, we advance our theoretical framework on firms' international expansion paths and geographic scope. Specifically, based on industry characteristics, we classify industries into three types of distinctive international expansion paths: *institution-*, *capability-*, and *linkage-driven* industries. We first discuss core characteristics of the three industry types and then provide more detailed discussion on each industry type in the following sub-sections. First, institution-driven industries are those heavily influenced by national institutions such as regulations and laws. Country-level conditions affect directly on cost advantages and international competitiveness across various modes of entry (e.g., Dunning, 1988; Porter, 1986, 1990). As such, in this type of industry, host country regulations and market conditions can be sources of major entry hurdles to internationalization. In fact, by efficiently internalizing institutional factors in different countries, including home country, MNEs can enjoy low input and transaction costs (Dunning, 1979).

Second, capability-driven industries are governed by firms' own capabilities such as advanced technology, high brand equity, and innovative products. Learning from experiences is also one of the

important sources of competitive advantage in these industries. Firms operating in this type of industry would face lower entry barriers than other types of industries since the primary source of competitive advantage is the firms' own capability. Reputation and innovative products with unique firm-specific advantages such as knowledge, technology, and human skills are the key sources for firms in capability-driven industries.

Third, unlike institution- and capability-driven industries, linkage-driven industries are characterized by control and coordination throughout supply chain activities. Linkage within the supply chain of these industries is important because they can create cost advantages by efficiently coordinating different activities within the supply chain. This will enable firms to reach economies of scale, which can be one of the main sources of comparative advantages (Besanko & Kanatas, 1996; Fernhaber, McDougall, & Oviatt, 2007). Vernon (1979) also suggested that firms need to build their international networks of producing units to get economies of scale and save labor and communication costs. Thus, international network contributes to finding new opportunities by providing market information from suppliers to customers (Hermansdottir, 2008).

2.3.1. Institution-driven industry

First, an institution-driven industry is one in which major entry barriers are country-specific factors such as regulations, government policies, and culture. For example, government regulations regarding tariffs and other trade barriers, market access, and channel controls may permanently hinder many firms from entering certain foreign markets (Knight & Cavusgil, 1996; Reid, 1983). The institution-driven industry shares some traits with value network firms in the value configuration suggested by Stabell and Fjeldstad (1998). They submit that since customizing services or products is very costly compared to the benefits of scale, the value network firms serve either very generic customers/clients or very specified segments where customers or clients are homogeneous.

Geographically extended networks have both positive and negative effects on firms. Having larger geographic coverages, firms will serve more customers but, at the same time, will require exponentially increasing investments for infrastructure. Infrastructure investment is one of the critical value creating activities for value network firms (Stabell & Fjeldstad, 1998). Thus, firms in an institution-driven industry work best in the international market when host countries provide favorable country-specific advantages (CSAs), such as large market size (more customers), low costs of inputs (low costs in infrastructure investments, suppliers, and resources), and low barriers of entry (open to foreign firms) as evidenced in the retail industry (Gripsrud & Benito, 2005). Liability of foreignness or the additional cost of doing business in host countries (Berry, Guillén, & Zhou, 2010; Ghemawat, 2007; Hymer, 1960/1976; Zaheer, 1995) does, in fact, constitute country-specific (dis)advantages that can be either host-country specific or home-host country specific. Thus, country-level factor endowments and environmental conditions exert substantial influence on sourcing- and production-side cost advantages (e.g., Dunning, 1988; Porter, 1986, 1990).

The institution-driven industry includes firms in agriculture, banking, insurance, natural resources manufacturing, retailing and wholesales, telecommunications, and utilities industry sectors. While these firms may develop skills and knowledge in exploiting CSAs, such skills and knowledge are embedded in host locations. By efficiently internalizing host country-level factors or CSAs in different countries, including home country, firms can enjoy low input and transaction costs in sourcing and manufacturing (Dunning, 1979). Thus, firms in the institution-driven industries actively seek to expand their upstream activities to foreign countries. These sectors are heavily controlled and managed by host-country governments (e.g., Cuervo-Cazurra, Inkpen, Musacchio, & Ramaswamy, 2014) and, therefore, the customer-end (downstream activities) of these firms is limited to the domestic market or institutionally integrated regional markets.

Competitive advantages in upstream activities, such as sourcing, inbound logistics, and production depend on the entire network of countries in which firms compete (Porter, 1986). For non-manufacturing industry sectors, customers' access (inbound) to the services is an important competitive advantage. Thus, to improve their scale economies, firms in institution-driven industries are likely to horizontally integrate their upstream activities abroad. While MNEs initially seek to take advantage of CSAs in their home countries, some types of CSAs are relatively weak in their home compared to those CSAs in foreign countries. Such weak home CSAs will lower their competitiveness in international markets. To enhance their competitiveness, these firms need to access foreign CSAs (Moon, Rugman, & Verbeke, 1998) and, therefore, tend to internationalize for the purpose of mainly natural resource seeking or efficiency seeking (Dunning & Lundan, 2008). Likewise, strategic assets-seeking FDI targets to acquire strategic assets available in host countries (i.e., host CSAs) through mergers and acquisitions or strategic alliances (Makino, Lau, & Yeh, 2002). Due largely to high switching costs and the specialized assets inherent to motivations (Caves, 1996), international expansion in these industry sectors is high in site-specificity by nature, which motivates firms to integrate upstream activities (Bucheli & Kim, 2015; Williamson, 1996).

2.3.2. Capability-driven industry

Second, firms in capability-driven industries use their own capabilities or FSAs for competitive advantages to compete internationally. FSAs are considered firm's ability to coordinate the use of advantages in production, marketing, branding, or the customization of services (Rugman, 1981). FSAs are unique capabilities belonging to a firm in a capability-driven industry and ultimately hinge on the firm's internalization of assets, such as production knowledge or managerial and marketing capabilities, over which the firm has proprietary control. Thus, a capability-driven industry is related to the value shop among three types of value configuration (Stabell & Fjeldstad, 1998). As such, the firm tends to exploit its proprietary assets (Makino et al., 2002) and expand its international operations for the purpose of market seeking (Dunning & Lundan, 2008). In this process, a list of difficulties in transferring the proprietary assets and securing property rights via arm's length transactions would motivate the value shop firm to horizontally integrate its downstream activities (Buckley & Casson, 1976; Caves, 1996; Kogut & Zander, 1993).

Firms operating in capability-driven industries often compete in customer-end and product-side such as distribution and sales, although their value can be added in supplier- and cost-side. Customer-end activities help create competitive advantages that are largely firm-specific, such as a firm's reputation, brand name, and service network (Porter, 1986). As such, they tend to exploit their proprietary assets (Makino et al., 2002) and expand their international operations for the purpose of market-seeking (Dunning & Lundan, 2008). In this process, a list of difficulties in transferring the proprietary assets and securing property rights via arm's length transactions would motivate the firms to integrate downstream activities (Buckley & Casson, 1976; Caves, 1996; Kogut & Zander, 1993). In capability-driven industries, MNEs keep their core FSAs, such as know-how, technologies, design skills, and brand identities (upstream activities), within their organizational boundaries in order to protect the dissipation of such FSAs to competitors and imitators. Knowledge-flows within an MNE, therefore, are generally from headquarters to the subsidiaries and not the reverse. For example, the adaptation of transferred products and processes to local environments is the main objective of foreign R&D (Doz, Santos, & Williamson, 2001; Hirschey & Caves, 1981). In addition, the advantage of a geographic concentration of large firms facilitates the integration of

multidisciplinary knowledge within the home country (Patel & Pavitt, 1991).

A capability-driven industry includes biotechnology, computers and electronics, consumer goods, information technology, and luxury goods industries, in which firm-level technological, marketing, and managerial capabilities will largely determine distribution and sales-side competitive advantages (e.g., Grant, 1991; Porter, 1986, 1990). Reputation and relationship with unique FSAs such as knowledge, technology, and human skills are the key value drivers for value shop firms, and thus firms in capability-driven industries (Stabell & Fjeldstad, 1998). Because of the importance of reputation and interconnectedness of problems, learning is also a critical success driver for these firms.

For capability-driven industries, location is also very important because (1) firms' access to knowledge is important to resolve customers' problems; and (2) clients and customers' access should be readily available when they need services or products. To reach customers, firms in capability-driven industries improve their FSAs and expand their downstream activities abroad. In fact, the value shop firms often compete in downstream activities such as distribution and sales (Porter, 1986). However, firms in capability-driven industries likely keep their core FSAs, such as know-how, technologies, design skills, and brand identities (upstream activities), within their organizational boundaries in order to protect the dissipation of such FSAs to competitors and imitators. In addition, the advantage of a geographic concentration of large firms facilitates the integration of multidisciplinary knowledge within the home country (Patel & Pavitt, 1991). Thus, it is not surprising that firms in a capability-driven industry focus on downstream activities by covering wider markets than other industries, which need upstream expansion.

2.3.3. Linkage-driven industry

Third, firms in a linkage-driven industry create their value through controlling and coordination throughout their value chains to get both drivers of economies of scale and innovation. This linkage among suppliers and buyers also affect international expansion pattern of MNEs (Martin, Swaminathan, & Mitchell, 1998). Once introducing the innovative products, firms consider their production location for achieving cost-minimization by reducing costs from the labor, communications and external environments (Vernon, 1966).

Examples of linkage-driven industries include chemical and pharmaceuticals, motor vehicle and parts, human and business services industries where inter-industry network is important in transferring and sharing knowledge within the industry. Such transferred and shared knowledge in transforming inputs into products create values to firms in linkage-driven industries. Thus, we infer that the value creation mechanism of the linkage-driven industries is close to that of value chains (Stabell & Fjeldstad, 1998). Through its value chain, a firm in a linkage-driven industry can achieve economies of scale and innovativeness together. Each activity in the value chain can be disaggregated because different activities have different value creation logic and thus contribute differently to the entire value chain. Thus, the competitiveness of firms in linkage-driven industries is determined by the cost economics of each primary value-added activity such as inbound logistics, operations, outbound logistics, marketing and sales, and service against that of its competitors.

While creating or adding values in each critical activity of their value chains, firms use their common pool of resources to coordinate interdependencies between critical activities from upstream to downstream through vertical integration. Such coordination also impacts their cost and competitiveness in linkage-driven industries. For manufacturing firms in linkage-driven industries, FSAs such as R&D and

marketing capabilities should meet country-level conditions such as regulations, skilled and educated labors, as well as inputs of materials. For non-manufacturing firms, highly skilled human services need frequent interactions with customers and clients. These firms also maximize their use of FSAs such as specialized knowledge and reputation by serving global customers.

Internationalization of a linkage-driven industry will depend on added values, economizing on the costs of the activity, and the costs associated with coordinating the activity within the value chain. For upstream value chain activities, like firms in institution-driven industries, firms first seek out home country CSAs such as customers, natural resources, skilled or low wage labor, and supporting industries, and then move to neighboring countries for CSAs that are not available at home. For downstream value chain activities, like firms in capability-driven industries, firms maximize the geographic reach of their FSAs that are mostly developed at home to economize on the costs associated with developing FSAs. Thus, firms in linkage-driven industries need location ambidexterity or the degree of balance between upstream-side advantages such as labor-cost advantage and downstream-side advantages such as market potential (Huang & Cantwell, 2017). Therefore, firms in linkage-driven industry sectors balance upstream and downstream activities in their international expansion.

To address our research questions, we first conduct a descriptive, qualitative analysis to find differences across industries in their internationalization paths and geographic scope. We then classify the results of the descriptive, qualitative analysis into three generic international expansion paths across industries based on their industry characteristics. Once the three generic paths are set forth, we conduct a growth curve analysis to statistically investigate the findings from the descriptive analysis. The growth curve analysis examines longitudinal changes in international paths and geographic scope and provides statistical evidence that corroborates our theoretical framework.

3. Descriptive analysis

3.1. Data and methods

For the paths and geographic scope of international expansion, we examine the traits of international expansion of firms listed in *Fortune Global 500* over a 10-year period between 1999 and 2008. During this period, 804 firms appeared on the list. Of these firms, 127 were bankrupt, had been acquired, or had merged with others during the period. Our data yielded 7412 observations for the 804 firms. While previous studies focus on cross-sectional analysis, the longitudinal data enable us to investigate the stability and dynamics in the patterns as well as the geographic scope of firm internationalization. We measure upstream internationalization by assets and downstream internationalization by sales (Rugman, Li, & Oh, 2009). Geographic assets and sales information were retrieved from each firm's annual report. We also employ other databases including *Compustat* and *OSIRIS* to supplement the information from the annual reports.

We classify the 804 firms into four categories in line with previous studies (Delios & Beamish, 2005; Osegowitsch & Sammartino, 2008; Rugman & Verbeke, 2004). First, *home region oriented firms* include firms with more than 50 percent of sales (or assets) within their home region of the triad. As such, the fact that a firm is classified in this category does not necessarily indicate that the firm conducts business exclusively in its home region; rather, it may indicate that the firm focuses mainly on its home region countries. Second, *host region oriented firms* are those with more than 50 percent of sales (or assets) in one region of the triad except their home region. Third, *bi-regional firms*

include those that have more than 20 percent of sales (or assets) in two regions of the triad, but less than 50 percent of sales in their home region. Lastly, *global firms* are those with more than 20 percent of sales in all three regions of the triad. We excluded *domestic firms* with less than 10 percent of sales in foreign countries because the focus of the current study is to investigate patterns and determinants of international expansion (Geringer, Beamish, & daCosta, 1989; Qian, Khoury, Peng, & Qian, 2010).

3.2. Seven types of expansion patterns

Among the 804 firms, 424 firms reported both sales and assets for more than five years. Thus, we use these 424 firms in the analysis of the patterns of international expansion at firm-level.³ We find that the vast majority of firms remained home-region based during the 10-year period. However, over time there are some movements as illustrated in Fig. 1, where we report the level of international expansion based on the three classifications discussed: *home region oriented*, *bi-regional*, and *global* (Rugman & Verbeke, 2004). On the vertical axis, we report the firms' classifications by sales, reflecting the downstream activities of the firms. On the horizontal axis, we report the firms' assets, reflecting upstream activities.

Initially, we identified 40 types of international expansion patterns. Seven of the 40 types, which represent 339 firms (80 percent), were static patterns, while the other 33 types, which represent 85 firms (20 percent), were dynamic patterns. We report two of the static patterns and five of the dynamic patterns that have more than five firms in each pattern. These seven types together explain about 90 percent of the international expansion patterns. Each of these seven types includes a minimum of five firms, which is more than one percent of the sample. Table 1 lists the home-region sales and assets, patterns, and a list of exemplary firms by the seven types of international expansion.⁴

Of the 424 firms illustrated in Fig. 1, 339 remained static. Most of these firms were home-region oriented. In addition, six firms reverted to being home-region oriented from bi-regional or global. This de-internationalization likely occurred because firms exercise error-correction or response to changes in competitive environments (Asmussen, Nielsen, Osegowitsch, & Sammartino, 2015; Benito & Welch, 1997). Overall, firms continued with (or focused more on) their home region strategies during the 10-year period. We only detected eight firms that became global in terms of sales (Type IV). None of the firms went beyond bi-regional with regard to assets (Type V). Thirty-five of the firms (Types III, IV and VI) became bi-regional with regard to sales, assets, or both.

3.3. Static patterns (shown as squares in Fig. 1)

3.3.1. Type I (staying home-region oriented)

There are 323 firms (76 percent) that were home-region oriented with regard to both sales and assets throughout the 10-year period. These firms fall into Type 1 in Fig. 1. Some of these companies include

³ We also looked at firms that provide both sales and assets data for less than five years. The results are quite consistent although, as expected, a very small portion (7 percent) of firms shows dynamic patterns. When using the four categories (i.e., *home-region oriented*, *host-region oriented*, *bi-regional*, and *global*), the Spearman rank correlation in sales between the firms that reported both sales and assets, and firms that reported only sales is 0.95. Likewise, the Spearman rank correlation in assets is 0.95.

⁴ The category of host-country oriented firms has less than five firms and, therefore, Fig. 1 and Table 1 do not report firms in this category. For those firms with less than five years of data, we found 11 patterns of which three are static patterns (93 percent of firms) and 8 are dynamic (7 percent). Pearson product-moment correlation between 40 patterns (derived from the firms with more than five years of data) and 11 patterns (derived from the firms with less than five years of data) is 0.996.

Note: Number of firms shown in parentheses.

Fig. 1. Seven types of international expansion.

Barclays, Carrefour, Deutsche Telekom, FedEx, Fiat, Fortis, General Motors, Johnson & Johnson, MAN Group, Metro, Mitsubishi Chemical, Munich Re, National Australia Bank, Renault, RWE, Saint-Gobain, Swiss Life, TD Bank, Toshiba, and the Volkswagen Group. On average, these firms had approximately 86 percent of sales and assets in their home region over the 1999–2008 period. The home-region orientation of the vast majority of firms has not changed over the 10-year period and, in particular, these firms do not exhibit any movement toward globalization, instead choosing to focus on their home region. A regional strategy is a safer and more manageable strategy when compared to a global strategy (Morrison, Ricks, & Roth, 1992). Firms that fall within this pattern successfully transform their home country FSAs into home-region bound FSAs and exploit the home region CSAs.

3.3.2. Type II (staying bi-regional oriented)

Fig. 1 indicates that six firms have remained bi-regional with regard to both sales and assets during the 10-year period. These firms are BP, Diageo, McDonald's, Nestlé, Roche Group, and Royal Dutch Shell. On average, these firms had close to 38 percent of sales and assets in their home region over the period. These are U.S. and European firms that have a strong presence in both North America and Europe, but a weak presence in Asia Pacific. These Western MNEs may find it difficult to operate in the Asia Pacific region due to the operational complexities that arise from entering into a different culture that has different customer needs and business practices as well as strong government protection. As such, a simple adaptation and extension of the Western MNEs' business model does not fit in the Asia Pacific region (Lasserre, 1996; Peng, 2006). No Asia Pacific firm was found to be classified into this type.

Table 1
Home-region sales and assets by the type of international expansion.

Year	Expansion type	Patterns of International Expansion and List of Firms			
		1999–2000		2007–2008	
		HR/TS %	HR/TA %	HR/TS %	HR/TA %
Type I		85.7	87.7	84.6	87.0
Type II		38.5	37.6	40.2	35.1
Type III		61.5	64.4	46.4	62.2
Type IV		56.8	75.1	42.1	68.2
Type V		66.6	63.5	63.6	44.9
Type VI		68.9	63.7	41.7	42.9
Type VII		65.0	45.5	71.9	71.7

Static: staying home-region oriented Barclays, Carrefour, Deutsche Telekom, FedEx, Fiat, Fortis, General Motors, Johnson & Johnson, MAN Group, Metro, Mitsubishi Chemical, Munich Re, National Australia Bank, Renault, RWE, Saint-Gobain, Swiss Life, TD Bank, Toshiba, the Volkswagen Group

Static: staying bi-regional oriented BP, Diageo, McDonald's, Nestlé, Roche Group, Royal Dutch Shell

Dynamic: toward a bi-regional orientation in regard to downstream ABB, Azko Nobel, Arrow Electronics, Avnet, BBVA, Bayer, Bridgestone, Cemex, Compass Group, DuPont, Emerson Electric, Ford Motor, Komatsu, Lafarge, Linde Group, L'Oréal, Magna International, Marsh & McLennan, Solectron, Sun Microsystems, United Technologies

Dynamic: toward a global orientation in regard to downstream 3M, Canon, Christian Dior, ING Group, Ingram Micro, LVMH, Nortel Networks, Ricoh

Dynamic: toward a bi-regional orientation in regard to upstream Alcoa, Computer Sciences, Credit Suisse, Heidelberg Cement, Heineken, Total, UBS

Dynamic: toward a bi-regional orientation in regard to both downstream and upstream Dana, Delphi, Johnson Controls, Nissan Motor, Paccar, Schering-Plough

Dynamic: toward a home-region orientation in regard to upstream AIG Group, Royal & Sun Alliance, Sara Lee, TXU (Energy Future Holding), Vivendi, Whirlpool

It is important to note that only Schlumberger, a U.S.-based oil field technology service MNE, has been a global firm with regard to both sales and assets over the 10-year period. According to *Business Week*, Schlumberger became a multinational giant by integrating its global reputation in standardized technological services and knowledge (i.e., FSAs) and through local adaptation of strong relationships with foreign governments and their state-owned companies (i.e., CSAs).⁵ We shall now discuss the five types of dynamic pattern in which 84 firms have shown movement.

3.4. Dynamic patterns (shown as triangles in Fig. 1)

3.4.1. Type III (toward a bi-regional orientation with regard to downstream)

There are 21 firms that moved from being home-region oriented to bi-regional oriented in terms of their sales. These firms are ABB, Azko Nobel, Arrow Electronics, Avnet, BBVA, Bayer, Bridgestone, Cemex, Compass Group, DuPont, Emerson Electric, Ford Motor, Komatsu, Lafarge, Linde Group, L'Oréal, Magna International, Marsh & McLennan, Solectron, Sun Microsystems, and United Technologies. On average, these firms increased their sales in foreign regions from 38.5 percent to 53.6 percent over the period, while they consistently had approximately 37 percent assets in their foreign regions.

In general, while the North American firms increased their sales in Europe and the European firms increased their sales in North America, neither had a strong presence in the Asia Pacific region. Three Asia Pacific firms (i.e., Bridgestone, Komatsu, and Solectron) increased their sales in North America and their home region. None of these Asian firms had a strong presence in Europe. According to the INSEAD Euro-Asia Center, trade and cultural exchanges between Asia and Europe have historically been much weaker than the links between Europe and the United States and between Asia and the United States (Probert, 1998). The report also notes that differences in managerial styles and techniques are one of the most difficult problems for Asian companies in Europe. Thus, most Asian firms are still in the early stages of their operations in Europe.

3.4.2. Type IV (toward a global orientation with regard to downstream)

Eight firms moved from being home-region oriented to being globally oriented in terms of sales. These firms are 3M, Canon, Christian Dior, ING Group, Ingram Micro, LVMH, Nortel Networks, and Ricoh. These firms increased their sales in foreign regions from 43.2 percent to 57.9 percent over the period. Whereas the previously focused on customers in their home region, they now sell their products globally. In general, those Type III and IV firms expanded their downstream activities (sales) to another region of the triad or all regions of the triad, while keeping most of their upstream activities (assets) in their home region.

These firms likely keep their identities and technological knowledge within their national or regional border while targeting global customers. According to the *Shanghai Daily*, “Though production costs for the Italian luxury house are much higher than for companies that have shifted manufacturing to Asia, the whole family [Ferragamo] decided to give up on high profit margins to maintain the value of goods “*Made in Italy*” and to think long term. There are both emotional and rational reasons for their refusal to compromise, Ferragamo said. ‘*My father is the pioneer who invented ‘Made in Italy’ in fashion, so we are very attached to that tradition. And in terms of quality and craftsmanship, Italy delivers the best*” (Yang, 2013).

3.4.3. Type V (toward a bi-regional orientation with regard to upstream)

Another seven firms moved from being home-region oriented to

⁵ Schlumberger invested about 3 percent of its revenues in research, while its major rivals invested less than 1 percent (Reed, 2008).

being bi-regionally oriented with regard to assets. These firms are Alcoa, Computer Sciences, Credit Suisse, Heidelberg Cement, Heineken, Total, and UBS. These firms increased their assets in foreign regions from 36.5 percent in 1999–2000 to 55.1 percent in 2007–2008.

Type III, IV, and V firms are vertical MNEs that integrate geographically separated value added activities. These firms take advantage of the country and regional differences on the customer-side, such as end-market price, the level of competition, product life cycle (Types III and IV), and sourcing and production-side, such as natural resources, labor costs, and the cost of capital (Type V) (Ghemawat, 2003; Rugman & Verbeke, 2004).

3.4.4. Type VI (toward a bi-regional orientation with regard to both downstream and upstream)

There are six firms that moved from being home-region oriented to bi-regionally oriented with regard to both sales and assets (Type VI). These firms are Dana, Delphi, Johnson Controls, Nissan Motor, Paccar, and Schering-Plough. On average, these firms increased their sales in foreign regions from 31.1 percent to 58.3 percent and assets in foreign countries from 36.3 percent to 57.1 percent over the period. These firms are either horizontal MNEs or network MNEs. The horizontal MNEs seek integration and aggregation benefits that exploit the similarities across the countries and regions. Thus, the horizontal MNEs will perform the same activities in different countries and regions (Ghemawat, 2003). The network MNEs will integrate and organize different and complex value added activities in various countries (Nohria & Ghoshal, 1997). Type VI MNEs have the potential to create a global integration strategy when they have enough efficiency in coordinating and controlling their activities. Such a strategy would lower the transaction costs in their subsidiaries in all of the triad regions (Bartlett & Ghoshal, 1989; Prahalad & Doz, 1987), although global integration would be hard to achieve. In fact, less than five percent of large firms are global. The behavior of type III, IV, V and VI MNEs can be explained using the internationalization theory as these firms gradually expand into foreign regions from their home regions.

3.4.5. Type VII (toward a home-region orientation with regard to upstream)

Six firms moved from being bi-regionally oriented to being home-region oriented with regard to assets, yet these firms have sales in two or three regions of the triad. These firms are AIG Group, Royal & Sun Alliance, Sara Lee, TXU (Energy Future Holding), Vivendi, and Whirlpool. Their home region assets were increased from 45.5 percent to 71.7 percent over the period. They have retained their home-region operations by focusing on their core businesses and divesting their non-core businesses in foreign regions. For example, TXU divested its subsidiaries acquired in the U.K. and Australia in the late 1990s due to their weak performance. Additionally, Sara Lee divested its mostly unprofitable European non-food businesses. Vivendi, AIG Group, and Royal & Sun Alliance also restructured their over-expanded non-core businesses and focused on their core businesses in their home regions. Whirlpool, on the other hand, focused on their home-region through acquisitions. It acquired its competitor, Maytag, in 2005 and has since become a home appliance giant in North America. These restructuring and acquisition processes are known as de-internationalization and help a firm's overall performance and the operation of the MNEs (Benito & Welch, 1997).

In order to test the robustness of the patterns illustrated in Fig. 1, we relax the thresholds of classifying *home-region*, *bi-regional*, and *global* firms as follows: (1) we raise the 50 percent threshold of home-region oriented firms to the 60 percent threshold; and (2) we lower the 30 percent threshold of bi-regional or global firms in each foreign region to 20 percent. This exercise provides very consistent results with the

patterns illustrated Fig. 1, although, as expected, it increased the number of bi-regional firms (Osegowitsch & Sammartino, 2008). The figure with the relaxed thresholds is also reported in the Appendix (Fig. A1).

3.5. Three generic paths of international expansion and their geographic scope

As shown above, we carefully review and analyze each firm's international growth, its history, and major events (e.g., mergers, acquisitions, relocations of its headquarters) in their annual reports, websites, and news articles. Through this rather qualitative investigation, we find that industry membership is important. Thus, we are able to summarize the aforementioned seven static and dynamic patterns of the MNEs into three generic paths of international expansion by the characteristics of broad industry sectors in Fig. 2.

3.5.1. The first generic path – international expansion path of an institution-driven industry (upstream international expansion)

Type V and parts of Type I firms tend to follow this generic path. Most of these firms are telecommunication, merchandising, and natural resource manufacturing firms as well as utilities and banks. To firms in this category, CSAs can be a source of competitive advantages in upstream activities, such as sourcing and production, which depend on the entire system of countries in which firms compete (Porter, 1986). While these firms may increase their upstream activities in foreign countries or a foreign region of the triad, their downstream activities are bound to home region countries. Thus, these firms source inputs from home and foreign region countries, but mainly target domestic and home region customers.⁶

3.5.2. The second generic growth path – international expansion path of a capability-driven industry (downstream international expansion)

Types III and IV firms and parts of Type I firms use the FSA driven path. In general, these are luxury goods, human service, and computer and electronics firms. These firms increase their downstream activities in foreign countries and foreign regions but keep their upstream activities in the domestic or home region countries in order to generate their FSAs and continue their competitiveness (Dunning, 1996). These firms developed their FSAs from home region CSAs such as brand images, technological knowledge, and human capital, and serve both home and foreign region customers by using such FSAs. Thus, it is less likely that these FSAs are limited by location factors (i.e., non-location-bound FSAs, Rugman & Verbeke, 2001).

3.5.3. The third generic path – international expansion path of a linkage-driven industry (balanced international expansion)

Types II and VI firms and some Type I firms follow this path, and most of these firms are chemical, pharmaceutical, and motor vehicle and parts firms. In these industries, the FSAs (financial capital, knowledge, technology, and marketing know-how) and CSAs (market size, labor cost, natural resources, infrastructure, regulations, and subsidies) are both important key drivers of international expansion. However, CSAs usually limit firms' global growth, as observed in the first generic path (i.e., value networks), and thus limit the geographic scope of FSAs (i.e., location-bound FSAs, Rugman & Verbeke, 2001).

4. Statistical analysis

In addition to the graphical illustrations in Fig. 2, we conduct a set

⁶ It is important to note that firms in CSA driven industries can have strong FSAs that may determine their competitiveness, operational efficiency, or profitability. However, what we argue here is that, *ceteris paribus*, CSAs usually shape the international expansion path of the firms in these types of industries.

Fig. 2. Three generic paths of international expansion.

of quantitative analyses in order to statistically test our rather qualitative investigation in classifying three generic paths based on the industry membership. Specifically, we employ a growth curve analysis (Curran, Obeidat, & Losardo, 2010) and examine the patterns of firm international expansion over the 10-year period. We then conduct a series of linear combinations of estimators to test the statistical significance of each path and the differences between them.

4.1. Variables

In order to operationalize a geographic scope of international expansion, which is the dependent variable for the analysis of international expansion patterns, we develop a composite measure to capture the extent of an MNE's geographic scope in its sales and assets, respectively. A fundamental insight of Rugman and Verbeke's (2004) seminal study and other follow-up studies is that there is a chasm between regions in terms of an MNE's geographic scope of international expansion (Aguilera, Flores, & Kim, 2015; Banalieva & Dhanaraj, 2013; Qian, Li, & Rugman, 2013). In other words, the mechanism governing the *within*-region expansion differs from the *across*-region expansion (Arregle, Miller, Hitt, & Beamish, 2013; Qian et al., 2013). In order to properly capture the continuous and categorical nature of the international expansion within and between regions, respectively, we operationally define the geographic scope of international expansion G as the extent to which a firm's sales and assets are dispersed across regions of the triad, and measured G of firm i in year t as follows in each of the two dimensions of sales and assets:

$$G_{it} = \sigma_{itk-1} + (\sigma_{itk} - \sigma_{itk-1})D_{it} \quad (1)$$

where σ and D refer to scaling matrix and dispersion matrix, respectively. The scaling matrix σ captures the categorical nature of the phenomenon. For σ , we used regional GDP of the regions of firm i 's sales or assets in time t to reflect the contribution of each region of the triad to global production and consumption based on the findings of Asmussen (2009) and Asmussen et al. (2015). k classifies the regions in firm i 's sales and assets in time t in accordance with the status of the firm's global expansion, and is equal to 1, 2, and 3 for home region, bi-region, and triad or global, respectively. The dispersion matrix D captures the continuous aspect of the phenomenon and measures the extent of dispersion of firm i 's sales and assets in time t across k regions. Specifically, the dispersion matrix is calculated as follows:

$$D_{it} = [\text{Max}(V_k) - V_{itk}] / [\text{Max}(V_k) - \text{Min}(V_k)] \quad (2)$$

where V refers to the variation in firms' sales and assets across k regions.⁷

Capturing both the categorical and continuous nature of the phenomenon, this measure enables us to consider the insights in Rugman and Verbeke's (2004) seminal study, as well as to utilize richer variances in the phenomenon. Indeed, adding a region-level to the conventional country-level approach provides better explanatory power than the country-level only approach (Arregle et al., 2013; Rugman & Oh, 2013). The Pearson product-moment correlation coefficients between the categorical approach and the measure employed in the current study are $r = 0.84$ for sales and $r = 0.76$ for assets.

⁷ We use standard deviations to measure the variation. However, as there is only one region for home-region oriented firms, we use the raw values of sales and assets, instead of standard deviations when $k = 1$.

Fig. 3. Changes in the scope of international expansion.

We specify time and path as independent variables. We also control for firm's total assets, revenue, and home countries. In addition, in order to control for potential industry- and firm-level effects, we specify random intercepts for industries and firms. We conduct a growth curve analysis (Curran et al., 2010) to statistically test the differences in patterns of international expansion across different types of industries.

The unit of analysis in the growth curve analysis is a firm.

4.2. Results of growth curve analysis

Panels (a) and (b) in Fig. 3 show changes in the geographic scope of international expansion—that is, G in Eq. (1) in downstream (sales) and

upstream (assets), respectively. In line with the paths illustrated in Fig. 2, Panel (a) shows that firms in Path 2 (capability-driven) have increased the scope of *downstream* international expansion more than those in Path 1 (institution-driven) and Path 3 (linkage-driven). Test results for the linear combination of estimators show that the slopes of Paths 1, 2, and 3 are positive and statistically different from zero at $p = 0.158$, $p = 0.000$, and $p = 0.008$, respectively, suggesting that firms in Paths 2 and 3 increased their scope of downstream international expansion with statistical significance. The results also show that *over time* there are statistically significant differences in the trajectories of changes between Path 1 and Path 2 ($p = 0.005$), and marginally between Path 1 and Path 3 ($p = 0.109$). Thus, firms in Paths 2 and 3 significantly increased their scope of downstream international expansion compared to the firms in Path 1. In addition, the result of a joint test for the linear combination of estimators is also statistically significant ($p = 0.013$). Therefore, we can conclude that for the downstream expansion, firms in Paths 2 and 3 have expanded their downstream side of geographic scope more than firms in Path 1.

Similarly, Panel (b) depicts that firms in Path 3 (linkage-driven) have increased the scope of *upstream* international expansion more than those in Path 1 (institution-driven) and Path 2 (capability-driven). Test results for the linear combination of estimators show that the slopes of Paths 1, 2, and 3 are statistically different from zero at $p = 0.509$, $p = 0.133$, and $p = 0.042$, respectively. In addition, the slope for Path 2 is negative. Thus, firms only in Path 3 (linkage-driven) increased their scope of upstream international expansion with statistical significance. The results also show that over time there are statistically significant differences in the trajectories of changes between Path 1 and Path 2 ($p = 0.095$) and between Path 2 and Path 3 ($p = 0.01$). In addition, the result of a joint test for the linear combination of estimators is also statistically significant ($p = 0.041$). Thus, we conclude that for the upstream international expansion, firms in Path 3 have expanded their upstream side of geographic scope more than firms in Path 1 and Path 2. In sum, the results of statistical tests corroborate the graphical illustrations in Fig. 2.

5. Discussion and conclusions

5.1. Implications

The findings of the current study first show that, overall, the nature and geographic scope of MNE's upstream and downstream activities have not changed much during the 10-year period. Twenty percent of the sample firms, however, show dynamic patterns in their international strategy over time. To elaborate, among those 20 percent, downstream international expansion is easier to achieve in the greater extent of geographic scope than upstream international expansion. The low levels of upstream international expansion explain, at least partially, the prevalence of outsourcing and licensing strategies in international sourcing and production and MNE's role as the orchestrator of a complex and extensive network organization (Buckley, 2009, 2011). The literature shows that the non-equity mode of entry in a host country increases with the level of risks and uncertainty (Agarwal & Ramaswami, 1992). Thus, we expect that the MNEs prefer low risk contractual agreements when investing in foreign regions of the triad rather than wholly owned subsidiaries or joint ventures for their upstream international expansion. Indeed, the MNEs' activities in foreign regions will be higher when using such entry modes than when using wholly owned subsidiaries or joint ventures. An MNE's plan to expand its upstream activities into foreign regions should provide extra resources to improve collaborative capabilities.

Second, our study extends the global value chain literature since it not only considers traditional linkage-driven industries using value

chain configuration but also underscores the importance of other types of value configurations (i.e., value shop and value network) in institution- and capability-driven industries. While firms in capability- and linkage-driven industries can potentially achieve global status of downstream internationalization, our data show that no firms achieve global status of upstream internationalization. It explains that transnational firms (Bartlett & Ghoshal, 1989) may exist in downstream activities of MNEs for capability- and linkage-driven industries, but not likely in upstream activities. Future research may focus on locations of value added-activities and how those locations and types of activities affect the coordination and structure of their entire MNE-level value configuration.

Third, while most firms gradually improve their FSAs and internationalize their activities, some firms may merge with or acquire incumbent firms in order to immediately strengthen their FSAs and, therefore, their market positions in host countries (Caves, 1996). An MNE, in a short period of time, may not be able to develop new FSAs through start-ups in foreign countries, but instead, internalizes required knowledge and opportunities in host countries from incumbent firms through M&As (Forsgren, 2002). We presume that MNEs use the M&A strategy in order to quickly achieve their efficient resource transfer/allocation, economies of scale/scope, and government relationship by internalizing target firms' capabilities. Future research should investigate how industry characteristics in M&A determine the coordination of value added activities in vertical or horizontal integration across countries or regions, and how the coordination affects M&A performance.

Four, our findings provide a qualified answer to previously inconsistent findings in two founding theories in international business: *internationalization process theory* and *internalization/transaction cost economics theory*. Many studies employing the internationalization process theory have employed a sample of firms operating in industries where firms have strong technologies or knowledge (i.e., FSAs) and, thus, these are firms in capability-driven or linkage-driven industries.⁸ These FSAs enable firms to first gradually expand from neighboring countries to global customers (downstream), and much later to establish their production subsidiaries (upstream) in fewer countries. In contrast, the majority of the *Fortune Global 500* firms are firms in industries such as banks, insurance, merchandising, natural resource manufacturing and utilities. These industries would follow the internationalization path and scope of an institution-driven industry and have very limited geographic scope (home region-oriented firms).⁹ In sum, as advanced in the main thesis of the current study, intrinsic characteristics of industries may require different mechanisms to optimally configure value creating activities across locations, which could, in turn, result in varying patterns of paths and geographic scope across industries in the process of firm internationalization.

Finally, following the point above, we contribute to the literature on internationalization and industry characteristics. Earlier studies in internationalization of business argue the importance of industry characteristics in firm internationalization. However, those studies focus on a few specific industries through case studies, and thus are unable to provide systematic evidence on heterogeneous internationalization patterns across industry types or industry characteristics behind such heterogeneity. By integrating earlier theories such as oligopolistic reaction theory (Knickerbocker, 1973) and product life cycle theory

⁸ Johanson and Wiedersheim-Paul (1975); Johanson and Vahlne (1977), and Vahlne and Ivarsson (2014) analyze firms operating in technology-intensive manufacturing industries. These firms configure their value creating activities as value shops or value chains. Eriksson, Johanson, Majkgard, and Sharma, (1997) investigate a sample of value shop firms in knowledge-intensive services industries such as accounting, advertising, legal, engineering and architecture.

⁹ About 50 percent of firms in Fortune Global 500 are banking, insurance, merchandising, telecommunication, utilities, and natural resource manufacturing firms.

(Vernon, 1966) with value configuration (Stabell & Fjeldstad, 1998), we provide empirical findings about how industry characteristics determine the path and scope of international expansion.

5.2. Limitations

The current study has limitations, which provide interesting avenues for future research. First, we used sales and assets as proxies for downstream and upstream activities, respectively. However, both downstream and upstream activities could be multi-dimensional and, therefore, future research on other value-creating activities such as sourcing, R&D, and logistics should advance our understanding about similarities and differences in international expansion across value-creating activities (Mudambi & Puck, 2016). However, it may not be easy to collect the details of value-creating activities from secondary data sources or surveys. Thus, since the current study establishes the empirical evidence by using a large longitudinal panel dataset, it is recommended that researchers use qualitative interviews to analyze the motivations and processes of international expansion of MNEs. In addition, because the current study focuses on market structure, product life cycle, and value creation logic, future studies on other industry characteristics such as technology types, productivity, and quality of labor can provide further insights on our understanding about international expansion paths.

Second, although we attempt to provide answers to the *which activity* and *where* questions in international expansion by large and mature MNEs over time, we are not able to answer *how*, *why* and *when* some firms internationalize their activities more than others within industry-wide international expansion paths. To address these questions, it will be helpful to review the full history of firms' international expansion. Although we provide details of the 424 firms' patterns of international expansion, future research could further enrich our understanding of the phenomenon by investigating the full history of a smaller sample, ideally firms in an industry to address the *how*, *why* and *when* questions. In addition, it would be important to closely look at firms within an industry sector and how their international expansion and geographic scope are similar or different depending on firm- and country-specific characteristics.

Third, as our sample firms are large in size, their international expansion paths could be very different from those of small and medium sized firms. Oviatt and McDougall (1994) maintain that international new venture firms are able to develop competitive advantages from their unique entrepreneurial firm capabilities. Such capabilities could readily and universally be deployable to foreign countries with a minimum competition and make it easier for firms to reduce complexity and uncertainty associated with foreign countries (Knight & Cavusgil, 2004). Oviatt and McDougall's international new venture theory, however, has been supported largely by firms that export their products rather than produce in foreign countries (e.g., Knight & Cavusgil, 2004; Moen & Servais, 2002). We expect that new venture firms will likely follow the internationalization path of the capability-driven industries. Thus, it is likely that new venture firms will coordinate their

downstream activities worldwide, but less likely that they will develop the capability to coordinate their upstream value chains through foreign investments. In addition, our sample firms are globally competitive given the nature of our sample (i.e., Fortune Global 500) and, thus, we believe that they are more likely to engage in exploitative FDI rather than to explore or seek strategic assets in the host countries (Makino et al., 2002). In fact, it is likely that explorative FDI of strategic assets-seeking motivations of the firms in our sample are less prominent than small and medium sized young firms. Therefore, future research should look at the effect of firm size and age on the paths of international expansion and their determinants.

Fourth, our sample period ends in 2008, which is before global financial crisis and anti-globalization movements. It is expected that firms' foreign investment decisions are affected by financial crisis (Alfaro & Chen, 2010) and anti-globalization movements (Globerman, 2017; Meyer, 2017; Vahlne et al., 2018). As such, future research with an extended sample period can examine how various recent global phenomena affect firms' international expansion patterns. We posit that more dynamic changes such as de-internationalization, re-internationalization, and rapid-internationalization, have occurred due to changes in global environments. However, at the same time, we also expect that such phenomena could have complex repercussions on firms' international strategies depending on their industries and home countries (Rugman & Oh, 2011).

Fifth, in the current study, we only analyze the patterns of international expansion. As such, our findings are not able to justify the association with their performance (Shaver, 2013). Indeed, a firm's under- or over-expansion compared with its industry peers could have important performance implications. However, investigating the link may not be straightforward because it could be difficult to empirically tease out the net effect of geographic scope on performance from other factors. In addition, the factors leading to under- or over-expansion could encompass several reasons including managers' over-confidence, capability misalignment, and strategic choice of boundary spanners. Therefore, future research on the performance implications of international expansion paths and their geographic scope should consider various endogeneity issues and qualitative approaches such as longitudinal interviews.

5.3. Conclusion

Analyzing the patterns of international expansion of the firms listed in *Fortune Global 500* during the period of 1999–2008, we identify seven types of international expansion patterns and group them into three generic paths of international expansion by major industry sectors: (1) a path of institution-driven industry (upstream expansion); (2) a path of capability-driven industry (downstream expansion); and (3) a path of linkage-driven industry (balanced expansion). We find that over time firms are likely to achieve larger geographic scope for their downstream activities than their upstream activities. Our growth curve analyses provide strong longitudinal evidence in support of our findings.

Appendix A

Note: Number of firms shown in parentheses.

Fig. A1. Results based on Relaxed Cut-off Values for Types of International Expansion.

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