POST-ENTRY OPERATION OF FOREIGN FIRMS IN A HOST COUNTRY: THE ROLE OF MUTUAL FORBEARANCE AND ORGANISATIONAL LEARNING IN THEIR PRODUCT SEGMENT ENTRY CHOICES

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Statement of Originality

This thesis is an original work conducted by myself under the supervision of Dr Alex Eapen while I was an MPhil student at the Research School of Management, Australian National University.

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Abstract

International business scholars who are interested in how foreign firms enter and operate in a host market have predominantly focused on the decisions managers make at the time of entry. Consequently, as Hennart and Slangen (2015) have pointed out, we know relatively little about foreign firms' post-entry operation. Moreover, the few studies that have examined the post-entry operation of foreign subsidiaries in a host market have focused mostly on changes in governance mode (Chang & Rosenzweig 2001; Driffield, Mickiewicz & Tethemouri 2016; Puck, Holtbrügge & Mohr 2009). Changes of product scope in the host country—which is a function of the subsidiary's choice of which product segments in the host country to enter or stay out of—has received comparatively sparse attention (except for Chang 1995; Mitchell, Shaver & Yeung 1994).

In this study, I examined the product segment entry decisions of foreign automobile assemblers in the United States in a bid to better understand their post-entry dynamics in their product scope. First, I took a historical approach and examined Honda Motor and BMW's initial entry and product scope dynamics in the United States auto market. Next, I conducted a quantitative study to understand the potential drivers of foreign firms' segment choices during their post-entry into a host market. Specifically, I developed predictions from mutual forbearance and organisational learning perspectives, and tested them using data on product segment entries by foreign automobile assemblers in the United States between 1987 and 2015.

Results show that foreign firms take into account both their rivals' reaction function and their own operating experience in a product segment when they make segment choice decisions. Specifically, a foreign firm's probability of entering a product segment has a curvilinear relationship with its multi-segment contact level with rivals in that segment and a positive relationship with its own prior experience in that

segment. Further, the curvilinear relationship between segment entry likelihood and multi-segment contact is strengthened as a foreign firm's prior segment experience increases.

This study makes three theoretical contributions. First, it adds to international business scholars' knowledge of foreign firms' post-entry operation, particularly their segment choice dynamics. Second, it discusses two time orientations, namely, future and past's role in foreign firms' segment choice decision-making. Third, my focus on product segment choice aligns the foreign market entry literature with the real business environment. Indeed, after their initial entry into a host market, foreign firms will face competition at the product segment level; yet, to date, overwhelming attention has been given to geographical market choice.

Keywords: Post-entry dynamics; mutual forbearance; multi-segment contact; organisational learning; segment experience; product segment entry

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List of Abbreviations

AIC	Akaike Information Criteria
CEO	Chief executive officer
CUV	Cross utility vehicle
HDR	Higher degree research
LR	Likelihood ratio
MNE	Multinational enterprise
MSC	Multi-segment contact
MSR	Multi-segment rival
R&D	Research and development
RSM	Research School of Management
SUV	Sport utility vehicle
TCE	Transaction cost economics
US	United States
VER	Voluntary export restraint
VIF	Variance Inflation Factor
WOS	Wholly owned subsidiary

Chapter 1: Introduction

1.1 Motivation

International business scholars who are interested in how firms enter and operate in a foreign host market have predominantly focused on the decisions managers make at the time of entry. Much of their attention has been on decisions related to the mode of entry (Agarwal 1994; Brouthers & Hennart 2007; Chang, Kao, Kuo & Chiu 2012; Chueke & Borini 2014; Nakos & Brouthers 2002; Schwens, Eiche & Kabst 2011), and where to locate upon entering the host country (Chung & Alcácer 2002; Goldberg & Johnson 1990; Head, Ries & Swenson 1995; Makino, Lau & Yeh 2002; Weinstein 1977). Although entry mode and location decisions, made at the time of entry, are crucially important, it is also true that an excessive focus on these choices has left international business scholarship relatively needy in its understanding of the post-entry operation of foreign firms in a host country (Hennart & Slangen 2015). Further, despite the expansion of a foreign firm's product scope—that is, the product segments of a given industry in which it is present—being a very visible marker of its post-entry dynamics in a host country, the choice of which product segments foreign firms enter and compete in over time has received very little attention. Toyota, for example, has evolved from selling just one car model in the United States (US)—the humble Toyopet—in the late 1950s to competing today in almost all segments of that market. Yet, despite this scope expansion being a very visible artefact of its post-entry dynamics in the US, we know little about how Toyota made the product segment entry decisions that shaped its product scope there.

1.2 Importance

This is a non-trivial gap. Perhaps even more than entry mode and plant location decisions, the product segment choices (and the resulting product scope) of a foreign firm in a host country influence the extent of rivalry it will face from competitors in that

host country. Rivalry, after all, is most intense between firms present in the same product segments. In its entry into the Australian grocery retail sector in 2015, for example, Kogan Pantry limited its entry to the dry groceries segment. This shielded it from more intense head-on rivalry with the large incumbents Woolworths and Coles, who were also present in fresh fruits and vegetables, bakery products and several other segments (Law 2015). Therefore, despite sharing the same location and entry mode with its competitors, Kogan's choice of product segments is what shaped the extent of its exposure to rivals. Similarly, GM China, in 2011, entered the no-frill car segment with its brand Baojun. This segment was dominated by local brands such as Great Wall and Geely, and compared with high-end segments where other strong foreign automakers were present, offered limited competition for GM (Shirouzu 2016). The share of GM China's sales generated from Baojun increased from 2.98 per cent in 2012 to 17.79 per cent in 2016 (General Motors 2013; General Motors 2017). Notably, this share jumped by about 153.06 per cent from 2014 to 2015, during which time Baojun entered the multi-purpose vehicle and sport utility vehicle (SUV) segment (General Motors 2015; General Motors 2016). Both segments were just starting to boom in the Chinese market at that time. Clearly, therefore, the product segments foreign firms choose to enter bear on the rivalry they will face in a host country and their likelihood of being successful there. Yet, as I have indicated, product segment entry decisions of foreign firms—and their resulting product scope dynamics—in a host country have not received the attention they deserve in the international business literature.

1.3 Theoretical and empirical approach

In this study, two approaches were taken to bridge this gap. First, I conducted a historical study of foreign automakers' post-entry dynamics of their segment choices. Second, I conducted a quantitative analysis with the aim of understanding the determinants of foreign firms' product segment entry decisions.

Two lines of theoretical arguments are potentially relevant to understanding foreign entrants' product segment entry behaviour. The first is from the literature on multipoint competition and mutual forbearance. Here, the emphasis is on how consideration of future retaliation can lead multimarket competitors to forbear from rivalrous behaviour—such as entering a new product segment—in the present (Anand, Mesquita & Vassolo 2009; Baum & Korn 1996; Edwards 1955; Golden & Ma 2003; Haveman & Nonnemaker 2000; Jans & Rosenbaum 1997; Scott 1982; Simmel 1950; Yu, Subramaniam & Cannella 2009). The second line of argument is the organisational learning perspective. This view emphasises past experience and the resulting momentum that influences firms' strategic choices (Amburgey & Miner 1992; Guillen 2003; Henisz & Delios 2001; Jiménez & Valle 2011). Interestingly, these perspectives highlight different time frames as relevant for the strategic decision-making process. While the mutual forbearance view emphasises anticipation of future retaliation from competitors, the learning perspective emphasises the role of a firm's past actions (Greve 2000). This raises several theoretically interesting questions: What role does consideration of past experience and future expectation play when managers of internationalising firms make segment entry decisions in the host country? In addition, does the influence of past experiences amplify or temper the willingness to forbear against future rivalry? I developed hypotheses from both mutual forbearance and organisational learning perspectives, as well as from an interaction between them, to provide some answers to these questions.

I tested my hypotheses using data on the product segment entry choices of foreign automobile assemblers in the US during the period 1987 to 2015. The first foreign plant in the US—Volkswagen's plant in Westmoreland, Pennsylvania—was opened in 1978, and many foreign automakers such as Honda, Nissan, Toyota and Hyundai followed suit and established US production operations in the 1980s (Arnholt

& Keenan 1996). My observation window starts from 1987 for two reasons. First, although a few foreign transplants have already been set up in early 1980s, it takes some time before these plants reach full capacity. Second, in 1985, five major industrial economies signed Plaza Accord. After the signing of this agreement, the value of US dollar depreciated significantly against other participants' currency such as Japanese Yen (Frankel 2015). This led to a higher level of import price for foreign automakers. Hence, it is fair to see that their local production activities accelerated since then. In addition, my setting—the automobile market—offered the advantage of being a relatively well-segmented market. It has distinct cohorts of customers, ranging from those who prefer high-end luxury cars to those who prefer entry-level small cars. Taking together the longitudinal nature of my data, which stretch back to the early years of foreign car production in the US, and the clearly defined segments in the industry, I gained the ability to study foreign automakers' segment entry choices—and thus their product scope dynamics.

1.4 Findings

I teased out three observations from my historical account. First, a foreign firm tends to enter undefended product segments at the time of entry into a host country. For example, Nissan entered the small car segment with Datsun 1000 in 1958 during the company's first time entry into US market (Automotive News 1996). The small car segment was a forgotten niche by domestic automakers at that time. Second, a foreign firm is likely to re-enter the same product segment to either replace existing lines or add new lines alongside existing lines. For example, Bluebird was added alongside Datsun 1000 in 1959. The former was replaced by 410 series in 1964 (Covello 2002). Third, a foreign firm also expands into product segments they have no prior presence after its initial entry into a host country. For instance, as part of its product scope expansion, Honda Motor entered mid-sized sedan segment with Accord in 1979 and luxury sedan

segment with Acura in 1986 (Covello 2002). The company had no prior experience in both segments.

Based on my quantitative study, I concluded that both consideration for future retaliation by rivals and the foreign firm's past experience in a given segment matter in its segment entry decisions. First, a foreign firm's likelihood of entering a given segment increases up to a point, but then decreases as its segment overlap with rivals increases (thereby also increasing the potential for retaliation by rivals). In other words, while entry is not constrained at low levels of segment overlap with rival firms, firms forbear from entering each other's segments when segment overlap is high. Second, a foreign firm's likelihood of entering a given segment increases with its past operating experience in that segment. Third, a foreign firm with more operating experience in a given segment displays a stronger inverted U-shaped relationship between segment entry and segment overlap with its rivals than its less experienced counterpart.

1.5 Contributions

This study makes three main contributions. First, it adds to the scant literature on foreign firms' post-entry dynamics. The foreign market entry literature has extensively studied foreign firms' decisions at their initial entry into a host market, such as their governance mode choice (Agarwal 1994; Brouthers & Hennart 2007; Chang et al. 2012; Chueke & Borini 2014; Nakos & Brouthers 2002; Schwens, Eiche & Kabst 2011) and location choice for operations in the host country (Chung & Alcácer 2002; Goldberg & Johnson 1990; Head, Ries & Swenson 1995; Makino, Lau & Yeh 2002; Weinstein 1977). Recently, some scholars have argued that there is a need to understand foreign firms' post-entry dynamics (Brouthers 2013; Hennart & Slangen 2015). Accordingly, an emerging stream of studies have examined the antecedents of foreign subsidiaries' ownership change (e.g., Driffield, Mickiewicz & Temouri 2016; Puck, Holtbrügge & Mohr 2009). Interestingly, my study is one of the first attempts (See also Chang 1995;

Mitchell, Shaver & Yeung 1994) to understand the factors that influence foreign firms' change of product scope in a host country, which is an essential part of their post-entry dynamics.

Second, this study contributes to the discussion of each time frame's role—the past or the future— when managers make product segment entry decisions. As mentioned above, results show that both their experience in the past and their conjecture on the reactions of multi-segment rivals in the future feature in foreign firms' segment entry decision-making calculus.

Third, by exploring global automakers' segment entry choices after their initial entry into the US market, this study fills a gap in the extant literature, where too much weight has been attached to entry and competition in geographical space, when fundamentally, rivalry plays out at the segment level, where firms compete by launching new product lines.

1.6 Thesis structure

The rest of the thesis is organised in the following way. In Chapter 2, I review studies in two literature streams on foreign market entry—those on entry mode choice and location choice and one literature stream in product segment entry/exit choice. Chapter 3 presents a contextual study that serves as a historical account of foreign firms' post-entry dynamics of product scope. I focus particularly on Honda's and BMW's changes of segment entry choice in the US auto market. In Chapter 4, I discuss the development of my main hypotheses based on mutual forbearance and organisational learning theories, as well as a hypothesis stemming from their interaction. In Chapter 5, I describe the methodology employed in the quantitative study, and in Chapter 6, I report descriptive and estimation results. In Chapter 7, I present additional analyses. In Chapter 8, I discuss my findings. In Chapter 9, I present

conclusions of this study. In Appendix A, I provide full lists of the firms and segments included in my dataset.

Chapter 2: Literature Review

When managers in multinational enterprises (MNEs) consider entering a new country, they need to make, among several others, three key decisions in sequence: (1) how to govern their operations there (e.g., by joint venture or wholly owned subsidiary [WOS]); (2) where to locate (e.g., in which state) and (3) which product segment to enter. International business scholars have extensively studied the factors that affect both entry mode choice and location choice. The third decision, namely, product segment choice has been studied mainly by strategic management and marketing scholars. Honda Motor's entry into the US automobile market exemplified this sequential decision-making process.

In 1970, Honda entered the US market with N600, a tiny two-door model. Although sales in early years with N600 and Civic rose steadily and exports accounted for 60 per cent of Honda's revenues, changes in external environment forced the automaker to set up local plants in its overseas market. Since mid-1970s, regulations on carbon emission, appreciation of Yen, rise of oil price and increasing tariff had begun to hit Honda's export business, making local production a viable option.

In 1975, the automaker decided to set up a wholly-owned plant in US, the largest automobile market in the world. Then, they started a feasibility study with a purpose to choose a plant site. After a thorough survey around US, in 1977, the company chose Ohio among several candidate states. Specifically, they chose a site in the suburb Marysville which had access to highway and was also a home of numerous highly-qualified workers. Finally, in 1982, the company launched Accord, a middle-sized sedan in its first US plant after a short period of experimentation with motorcycles production (Honda Worldwide Home 2017). Below I review literature in entry mode choice, location choice and product segment choice in sequence.

2.1 Entry mode choice

A large body of empirical work on entry mode choice has concentrated on the role of proprietary knowledge (Brouthers & Brouthers 2003; Erramilli & Rao 1993; Gatignon & Anderson 1988; Hennart 1991; Kim & Hwang 1992; Makino & Neupert 2000; Nakos & Brouthers 2002; Padmanabhan & Cho 1996; Taylor, Zou & Osland 1998) in MNEs' decisions on how to govern their foreign operations. Transaction cost economics (TCE) (Williamson 1985) suggests that firms tend to choose a governance structure that can provide protection of their proprietary assets. According to the TCE perspective, an MNE's local partner may exhibit opportunistic behaviour such as misappropriation of the MNE's intellectual property. This raises MNEs' need to internalise a transaction, which implies a positive relationship between MNEs' stock of proprietary assets and ownership level in their foreign investment. A higher ownership provides MNEs with higher control of their proprietary assets and mitigates the risk of misappropriation. Empirical findings largely support this notion (Gatignon & Anderson 1988; Nakos & Brouthers 2002; Padmanabhan & Cho 1996). For example, Gatignon and Anderson (1988) found that WOS is preferred over partial ownership when the foreign entrant's research and development (R&D) and advertising intensity are high.

In a TCE framework, in addition to proprietary assets, external uncertainty (e.g., political instability, policy unpredictability, exchange rate fluctuations and language barriers) in a host country environment is a major factor that influences foreign firms' entry mode choice (López-Duarte & Vidal-Suárez 2010). Specifically, the impacts of two types of external uncertainty on entry mode choice have been explored: cultural distance (informal aspects of external uncertainty) and institutional quality (formal aspects of external uncertainty).

In terms of the relationship between cultural distance and subsidiary ownership, findings have been inconclusive (Agarwal 1994; Bell 1996; Chang & Rosenzweig 2001;

Fladmoe-Lindquist & Jacque 1995; Hennart & Larimo 1998; Kogut & Singh 1988; Randøy & Dibrell 2002; Slangen & Tulder 2009). These inconsistent findings have been labelled 'the CD paradox' (Brouthers & Brouthers 2001, p. 177). For example, Hennart and Larimo (1998) found that Japanese MNEs were more likely to choose joint venture over WOS in the US market than their Finnish counterparts because the former faced greater cultural distance than the latter. Japanese MNEs had stronger incentives to seek help from local partners to manage issues such as labour relations than Finnish MNEs. In contrast, Randøy and Dibrell (2002) found that increase in cultural distance was associated with increase in Norwegian multinational corporations' foreign market resource commitments, which, as they argued, might be made through the adoption of a higher control entry mode. Interestingly, Slangen and Tulder (2009) found that cultural distance had no effect on Dutch MNEs' entry mode choice.

Notably, in one of the first attempts to study the role of cultural distance in MNEs' entry mode choices in their first entry and subsequent entries separately into a host market, Chang and Rosenzweig (2001) found that an MNE's likelihood of choosing acquisition over greenfield mode was negatively related to cultural distance in both first entry and subsequent entries, but the marginal effect of cultural distance was weaker in subsequent entries than that in the first entry.

As Robins (1987: 68) suggested, transaction cost theory needs to be applied 'within the framework of more general organizational theory'. Recognising this critical point, a stream of works has been conducted to study the role of formal institutional environment on MNEs' organisational mode choice (Brouthers 2002; Chang et al. 2012; Delios & Beamish 1999; Delios & Henisz 2000; Demirbag, Glaister & Tatoglu 2007; Driffield, Mickiewicz & Temouri 2016; Meyer 2001; Puck, Holtbrügge & Mohr 2009; Yiu & Makino 2002). Drawing on insights from new institutional economics (North 1990), Delios and Henisz (2000) found a negative relationship between public

expropriation hazards in a country and foreign entrants' ownership level in their foreign business, using a sample of 660 Japanese MNEs and their 2827 subsidiaries in 18 emerging markets. In contrast, Chang et al. (2012), in a study of Taiwanese MNEs' entries into 13 countries, found that MNEs preferred to own a WOS if the governance quality in a host country was poor.

Interestingly, a few scholars have studied the effect of change in a host country's institutional environment on the change of MNEs' ownership level in their foreign operations. For instance, Puck, Holtbrügge and Mohr (2009) found that a perceived increase in economic, political and legal and social stability was positively related to a shift from joint venture to WOS, whereas perceived degree of regulation was negatively associated with the shift. More recently, Driffield, Mickiewicz and Temouri (2016) found that MNEs were more likely to decrease their ownership in a foreign affiliate as access to the local equity market became easier and they were less likely to shift to minority ownership as the institutional quality in a host country worsened.

2.2 Location choice

Similar to entry mode choice, an MNE's decision on where to locate plants involves comparing a set of candidate choices. Essentially, according to interviews conducted by Haigh (1989), plant location decisions follow a three-step procedure. First, a geographic region (e.g., the Midwest) is chosen. Second, one or more states within the selected region are chosen. Third, a specific plant site is chosen. The extant literature includes analyses of the role of two regional-level factors (macroeconomic condition and institutional quality) and one industry-level factor (agglomeration benefit) in influencing MNEs' plant location choice.

At the regional level, empirical evidence has shown that favourable macroeconomics conditions are positively related to the probability of being chosen as a foreign direct investment location (Coughlin, Terza & Arromdee 1991; Jordaan 2008;

Luger and Shetty 1985; Wei et al. 1999; Woodward 1992). For instance, Woodward (1992) showed that Japanese manufacturing firms are more likely to locate their new plants in US states where market demand is high and the unionisation rate is low; at the sub-state level, US counties with lower unemployment and poverty rates and higher concentrations of educated and productive labour forces are more likely to be chosen to host the plant site.

However, macroeconomic factors alone cannot fully explain MNEs' location choices and a host country's regional regulatory environment should be considered as well (Bobonis & Shatz 2007; Du, Lu & Tao 2008; Friedman, Gerlowski & Silberman 1992; Head & Ries 1996; Meyer & Nguyen 2005; Zhou, Delios & Yang 2002). For example, Du, Lu and Tao (2008) demonstrated that US MNEs have a higher propensity to invest in regions in China that have better protection of intellectual property rights, a lower level of government intervention in business operations, a lower level of government corruption and a higher level of contract enforcement.

At the industry level, exploitation of agglomeration externality has been found to be another major consideration in MNEs' subsidiary location decisions (Barrios, Görg & Strobl 2006; Chung & Alcácer 2002; Crozet, Mayer & Mucchielli 2004; Head, Ries & Swenson 1995; Lee & Hwang 2016; Shaver & Flyer 2000; Smith & Florida 1994). There are two types of agglomeration: horizontal agglomeration and vertical agglomeration. Horizontal agglomeration means that firms from the same industry cluster. Marshall (1920) argued that firms seek two horizontal agglomeration benefits. First, they cluster to seek technological spillovers from each other. The flow of ideas and information between firms could be easier because of their geographical proximity. Second, they cluster to gain access to a pool of skilled labours. In contrast, vertical agglomeration refers to clustering of upstream and downstream firms. Venables (1996) provided two reasons for this phenomenon. First, upstream firms (e.g., suppliers) can

secure access to markets by locating near downstream firms (e.g., assemblers). Second, downstream firms also tend to locate close to upstream firms to reduce transportation costs.

Empirical results show support for both horizontal and vertical agglomeration. For instance, Head, Ries and Swenson (1995) found that Japanese manufacturing firms liked to locate their plants in a US state where other Japanese firms from the same industry were already present, supporting the horizontal agglomeration. In support of the vertical agglomeration, Smith and Florida (1994) found that Japanese automotive-related manufacturing plants were more likely to locate in a county where distance to the nearest automotive assembler was short and a US 'Big Three' assembler was present.

2.3 Product segment choice

After entry mode and location of entry are confirmed, an MNE has to decide which product to develop and offer to the market. Specifically, as part of their product strategy, firms need to choose which product segment to stay in. In other words, they will use market segmentation to meet the development in consumer preferences (Smith, 1956). In economic terms, market segmentation is "a state of demand heterogeneity such that the total market demand can be disaggregated into segments with distinct demand functions" (Dickson & Ginter, 1987: 5).

Market segmentation provides profitable opportunities for firms to pursue while in fulfilling this goal, they need to implement product diversification. Product diversification can refer to expansion into businesses adjacent to a firm's current operations (related diversification) or businesses distant from its current operations (unrelated diversification) (Barney 2002). I briefly review the factors that contribute to related diversification because it is closer in meaning to product segmentation, my outcome of interest than unrelated diversification.

Scholars in different academic fields have studied the antecedents of related product diversification. From an economics and finance perspective, firms diversify into nearby businesses to exploit two benefits. First, they can leverage market power which is not enjoyed by single-business firms. For example, a diversified firm can undercut its less diversified rivals' price in a market without fear of loss because it can divert profits from other markets to sustain the low price offered in the focal market (Caves, 1981; Scherer, 1980; Shepherd, 1970). Second, a more diversified firm can access to a larger capital market than its less diversified counterpart. By entering into a new segment, a focal firm expands its capital pool. Specifically, the focal firm can use cross-unit subsidization when one business unit incur losses (Berger & Ofek 1995; Palich, Cardinal & Miller 2000; Stein 1997). This type of cross-unit subsidization can provide shareholders a more stable earnings stream (Lewellen 1971).

In contrast, strategic management scholars have relied on resource-based view (Barney 1991; Wernerfelt 1984) to explain the motivation behind firms' product diversification. According to this view, firms diversify to maximize the usage of excess resources (Porter, 1985). Specifically, they are motivated to share resources across related business units (Wan, Hoskisson, Short & Yiu 2011). By doing so, a focal firm can utilize the overhead resources such as research and development capability, managerial skills and buyer loyalty over multiple business lines (Palich, Cardinal & Miller 2000). This helps the focal firm reap benefits from economies of scope (Lubatkin & Chatterjee 1994; Markides & Williamson 1994; Nayyar & Kazanjian 1993). Economies of scope is achieved by spreading costs of a common asset across intra-firm units, which is termed "asset amortization" by Markides and Williamson (1994).

In addition, other factors may also drive product diversification. One such factor is managers' need to secure their job (Amihud & Lev 1981; Servaes 1996; Shleifer & Vishny 1989). Amihud and Lev (1981) argued that managers diversify their firm's

business so that they can reduce their employment risk. Other factors mentioned in the literature include to exploit technology diffusion and gain efficiency from learning (Barney 1997; Palich, Cardinal & Miller 2000), to tackle low market growth potential (McDougall & Round 1984), to meet diverse customer needs (Reed & Luffman 1986), to take advantage of the alliance with service providers in complementary businesses (Døving & Gooderham 2008), to reduce shareholders' dividends tax (Hoskisson & Hitt 1990; Jensen 1986) and corporate income tax (Auerbach & Reishus 1988; Hoskisson & Hitt 1990).

If product diversification entails entry into related product categories, then product segmentation, the focal phenomenon of my thesis only involves entry into and/or exit from different niches within the same product category. Strategic management scholars have long been interested in the factors that affect firms' entry into and/or exit from a product segment (e.g., Amburgey, Kelly & Barnett 1993; Baum & Singh, 1994; Boeker et al., 1997; Dobrev, 2007; Giachetti & Marchi, 2010; Greve, 1996; Haveman, 1993; Stephan et al., 2003; Swaminathan, 1998). Swaminathan (1998) found a positive relationship between the entry rate into microbrewery and brewpub segments in US brewing industry and the imported volumes of beer. This finding supports the niche formation notion where exogenous factors such as changes in consumer preferences explain emergence of new market segments (Delacroix & Solt, 1988). Similarly, Baum & Singh (1994) showed that overlap density was negatively related to the founding rate of a day care centre in an age niche while nonoverlap density facilitated such founding. By integrating imitation and resource competition perspectives, Dobrev (2007) found that an automobile manufacturer's propensity to exit a market segment would first increase and then decrease as the number of peer manufacturers' exits from that segment increased. This is because after a threshold, the

appeal of resource release outweighs the contagion effect, attracting incumbents to stay in a segment.

At intra-segment level, Dobrev, Kim and Hannan (2001) found that French and British automakers' hazard of changing their position in a niche increased as their niche overlap density increased. This indicates that intensified competition in one position among niches (e.g. the niche centre) might pressure incumbents to move to another position (e.g., the niche periphery). This is in consistent with the notion of resource partitioning theory (Carroll, 1985). According to this theory, generalists occupy the market centre and specialists emerge because the latter can take advantage of the untapped resources in the peripheral space of a market.

At industry level, Sorenson (2000) showed that the negative effect of multiple product offering on likelihood of firm exit from North American computer workstation industry was contingent on rivalry level in the industry. More recently, in a case study, Giachetti & Marchi (2010) recorded that global mobile phone producers adopted different product strategy (e.g., a switch from process innovation to product innovation) at different stage of industry life cycle.

Marketing and strategic management scholars also studied the implications of market segmentation on firm performance (Baum and Singh, 1994; Byrom and Lehman, 2009; Cameron, 2011; Jarvis and Goodman, 2005; Lawless and Anderson, 1996; Parrrish, Cassill and Oxenham, 2006). In a case study, Byrom and Lehman (2009) attributed the financial success of Coopers, an Australian family-owned brewer to its focus on premium beers. Similarly, Parrrish, Cassill and Oxenham (2006) found that US textile and apparel producers that had adopted a niche strategy earned more profits and higher market share than when they had not adopted such a strategy. Interestingly, Lawless and Anderson (1996) found that US microcomputer manufacturers that had changed their niche had poorer performance than those that had stayed in their niche.

In contrast, scant work in international business has been done to analyze the factors that affect foreign firms' product segment choice in a host country (except for Chang, 1995; Mitchell, Shaver & Yeung 1994). Chang (1995) found that Japanese electronics manufacturers tended to enter their core businesses first before they expanded into noncore businesses in US market. This pattern of sequential entry is built upon learning from prior experience. Specifically, these firms accumulate local knowledge and expertise which are necessary in competing in noncore businesses. Mitchell, Shaver & Yeung (1994) found that the length of time a Canadian firm stayed in a US medical sector market was longer when the share of foreign businesses in that sector market at the firm's time of entry was at moderate level than at high and low level.

2.4 Literature gap

The emphasis of the existing international business literature on entry mode choice and location choice and strategic management literature on product segment choice decisions suggests two key areas for further study. First, both entry mode choice and location choice are made at the time of an MNE's entry into a host country. Therefore, the attention of scholars has largely been on decisions made on initial entry by an MNE into a host country (except for Chang & Rosenzweig 2001; Driffield, Mickiewicz & Temouri 2016; Puck, Holtbrügge & Mohr 2009); comparatively, post-entry dynamics has received little attention.

Second, how MNEs decide which product segments to enter and/or exit in a host country has received virtually no attention (except for Chang, 1995; Mitchell, Shaver & Yeung, 1994). Most empirical works in product segment choice were conducted by strategic management and marketing scholars in domestic settings. As a result, we know very little about the antecedents of foreign firms' post-entry operation in a host country. My study attempts to fill these gaps. Specifically, I examine the iterated process of

foreign automakers' product segment entry choice in the US market. In the following chapter, I present a historical account of this process as a context of the quantitative analysis. In particular, I examine Honda Motor and BMW's entry path in detail.

Chapter 3: Contextual Study—Foreign Automakers' Post-Entry Dynamics in US Market, 1949–2015

This chapter vividly illustrates foreign automakers' post-entry dynamics, specifically, the changes in their segment entry choice. First, I show foreign automakers' entry moves into the small car segment before 1980. This will provide an overall picture of the competitive landscape and how it was shaped by the interaction between foreign and domestic producers in the US auto market during these post-war years. Next, I will discuss the segment entry paths of two automakers, Honda Motor and BMW.

3.1 Imports to the small car segment

The first wave of imports arrived on US shores in the late 1940s. In 1949, just two Volkswagen Beetles were brought to the US for sale, and by the late 1950s, several hundred had been sold in the New York area alone, according to *Motor Trend* magazine (Covello 2002). Renault introduced the tiny four-door sedan 4CV in 1949 (Covello 2002) and a slightly larger Dauphine in 1956 to rival the Volkswagen Beetle (Covello 2002). Nissan showed the Datsun 1000 at the Los Angeles Imported Car Show in 1958 (Automotive News 1996). Toyota, as mentioned in Chapter 1, began exporting to the US market with the tiny Toyopet in 1958 (Toyota Motor Corporation 2017). Even performance car maker BMW launched a minicar Isetta 600 in 1958 and 3925 units of the Isetta were sold that year (Covello 2002). The imports began to gain a foothold in the US market through the dominance of the small car segment in the late 1950s. Their market share in the US auto industry increased from a tiny 0.46 per cent in 1948 to 10.17 per cent in 1959 (R.L. Polk & Co. in White 1971).

Although most foreign firms joined the marketplace right after the end of the war, there were exceptions. For example, as a latecomer compared with other Japanese

firms, Honda Motor did not enter the playing field until the beginning of the 1970s (Honda Worldwide Home 2017). This could be attributed to the company's initial focus on motorcycles and the founder Soichiro Honda's enthusiasm for motorcycle racing. The company's first car sold in the US market, the N600, was a two-door sedan with a 78.75 inch wheelbase, a two-cylinder 598 cc engine and moderate price of $1398 (Covello 2002). It arrived in May 1970 through the company's motorcycle dealerships (Honda Worldwide Home 2017).

In contrast with foreign firms' rush into the small car segment, Detroit's Big Three delayed their entry into the segment until 1959, when they introduced the Chevrolet Corvair, Ford Falcon and Plymouth Valiant respectively (Rae 1984), for two reasons. First, they were concerned about the small profit room of the segment. For instance, Henry Ford II believed that small car meant small margins (Johnson 2005). Second, they worried that small car introductions might cannibalise the sales of their existing models.

3.2 Imports' re-entry[1] into the small car segment

To solidify their initial success in the small car segment, foreign firms updated their product lines in that segment during the 1960s to1970s. For example, Toyota added the Toyopet Tiara in 1960, the Corona, a two-door hardtop coupe in 1967, and a subcompact Corolla in 1968 (Covello 2002) alongside the original Toyopet that was exported in 1958 (Toyota Motor Corporation 2017). In 1971, the Celica, a two-door coupe was added to Toyota's line-up (Covello 2002). Similarly, Nissan added the Bluebird alongside the Datsun 1000 in 1959 (Covello 2002). The 410 series replaced the Bluebird in 1964 (Covello 2002) and the 510 series replaced the 410 series in 1968

[1] I consider two types of re-entry. One is adding a new line alongside existing ones. In 1988, Suzuki added Sidekick to small SUV segment. The new entry made the firm's number of lines in that segment double from one (Samurai) to two (Samurai and Sidekick). The other one is replacing an existing line with a new line. Nissan entered small pickup segment in 1980 and until 1997, Nissan Pickup was the only line in that segment. In 1998, the firm replaced Nissan Pickup with Frontier which had been the only line offered by Nissan in small pickup segment until the end of 2015.

(Covello 2002; Automotive News 1996). In 1973, the 610 series was added as the company's offering at the upper end of the small car segment (Covello 2002). In addition, Renault replaced the Dauphine with the R8 in 1962, replaced the R8 with the R10 in 1967, and added a two-door hatchback R5 in 1976 (Covello 2002).

Interestingly, three years after its initial entry into the US market, in 1973, Honda Motor replaced the N600 with a larger two-door sedan Civic with an 86.6 inch wheelbase and four-cylinder 1169 cc engine (Covello 2002). Its sales rose from 32,575 units in 1973 to 132,286 units in 1976 (Johnson 2005). In 1975, Civics with CVCC engines arrived (Covello 2002). The Civic/CVCC was the first car to pass the Environmental Protection Authority's emission test and was rated number 1 in terms of fuel economy (39 mpg) (Covello 2002).

3.3 Small car boom into the 1980s

The second wave of imports into the US market, specifically in the small car segment, arrived during the 1980s. In 1985, Zastava's Yugo came with first-year sales of 378 units; however, it ceased sales in 1992, earning the title of 'the worst car of the millennium' by National Public Radio's *Car Talk* (Vuic 2010). In 1986, Hyundai brought the subcompact car Excel to US shores and became the best first-year sales model in history with its low price of $4995 (Covello 2002). By the end of the 1980s, the segment had become oversaturated. In 1990, there were 12 foreign brands and 41 lines in the segment (WardsAuto 1990). The fierce competition between foreign firms and domestic firms and also among foreign firms themselves led to narrow profit margins. For example, GM once said it incurred an approximately $1000 loss on each small car it produced (Deep 1999). However, foreign firms relied heavily on the small car segment in their product portfolios. In 1980, 46 per cent of foreign firms' aggregated sales were generated from the small car segment (WardsAuto 1980). The ratio dropped

to 32 per cent in 1990; however, it was still twice as much as the ratio for domestic firms (WardsAuto 1990).

3.4 The market shift towards sport utility vehicles

From the early 1990s, gasoline prices started to fall (see Figure 3.1). The US retail gasoline price decreased from $1.89 per gallon in 1990 to $1.60 per gallon in 1999 (U.S. Department of Energy 2016). Noticeably, it bottomed out at $1.47 per gallon in 1998, the lowest point since the Great Depression (U.S. Department of Energy 2016).

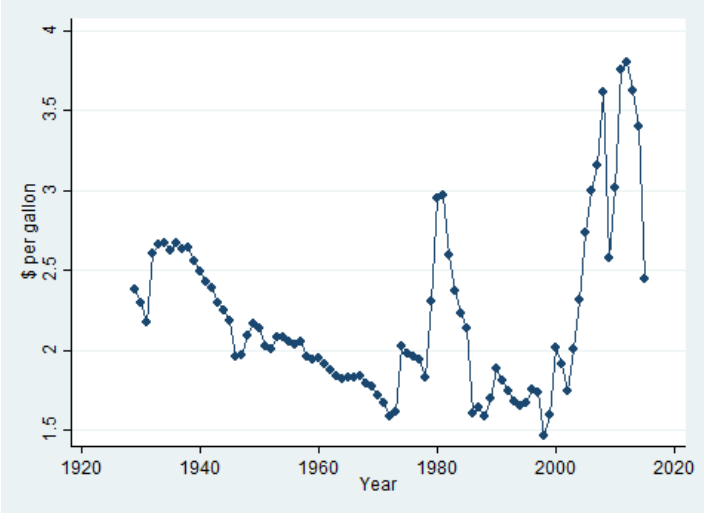

Figure 3.1. US Retail Gasoline Price 1929–2015 (U.S. Department of Energy 2016).

As a result, consumers began to move away from compact cars, which had been the import brands' secret weapon in penetrating the US market. For example, Honda Civic's sales plummeted by 92 per cent within one year, from 210,568 units in 1991 to 17,670 units in 1992 (WardsAuto 1991, 1992). The car line's sales had decreased to a mere 11,545 units by 1996, which accounted for only one-tenth of its sales a decade previously (WardsAuto 1986, 1996) (see Figure 3.2).

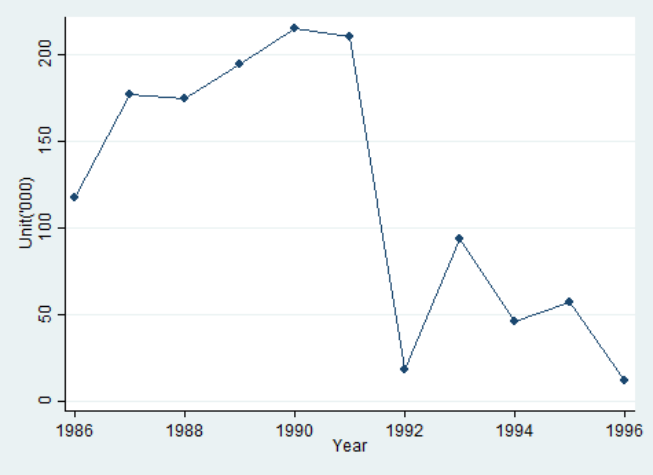

Figure 3.2. Honda Civic sales, 1986–1996 (WardsAuto 1986–1996).

Sensing the shift in consumer preference, from small fuel-efficient cars to large gas guzzlers, by the early 1990s, Detroit's Big Three were leading an SUV boom. In March 1990, Ford Motors launched the Explorer (Geist 2003). The car line's sales increased from 97,990 units in 1990 to 241,513 units in 2015, representing a nearly 1.5 times increase (WardsAuto 1990–2015). In 1992, GM's GMC division launched the Yukon, a large SUV, strengthening the company's reputation in truck-based vehicles. Sales surged from 3933 units in 1992 to 40,896 units in 2015 (WardsAuto 1990–2015). In January 1992, the president of Chrysler, Bob Lutz, drove a newly built Grand Cherokee jeep from the Jefferson North Assembly Plant to the Cobo Centre, where the North American International Auto Show was taking place. The jeep was driven up the steps towards the main entrance and through a plate glass window (Wayland 2015). As the first-ever publicity for a jeep at an international auto show, presented in such an innovative way, Lutz's drive not only spurred Grand Cherokee's sales but also signalled the arrival of the SUV era (Ingrassia 2010). The car line's sales increased from 47,032 units in 1992 to 189,325 units in 2015 (WardsAuto 1990–2015). In 2015, SUV sales accounted for 35.9 per cent of auto sales in US market (Lienert 2017).

To raise profitability and also hedge against the downward sales trends in the small car segment, foreign firms began to expand their product scope. Two companies,

Honda Motor and BMW, deserve particular attention. Though involved in the automobile business at different time points, they pursued a somewhat similar path of product scope expansion in the US market. First, I describe Honda Motor's case, and then, BMW's case.

3.5 Honda Motor's product scope expansion

Honda Motor's segment advancement is a representative example of a young firm's product scope expansion. Growth was critical for its survival. In its first decade of sales in the US car market, Honda Motor kept a low profile by focusing on the small car segment, in line with other Japanese car makers. However, based on their success with small cars, they advanced into other segments from the late 1970s. Before proceeding to their segment advancements, it is important to trace back to the company's very first consideration for export to the US as part of its overseas expansion strategy. In addition, some entry events such as the introduction of the N600 and Civic will be discussed again because they are antecedents to the company's segment advancements.

In 1957, after laying a solid foundation in the domestic motorcycle market (a market share of 17.9 per cent) (Alexander 2008), Honda Motor chose the US as its pioneering export market following a thorough survey in Southeast Asia, Europe and the US. This decision was made by the then senior managing director, Takeo Fujisawa, also a co-founder of Honda Motor. He believed that entering the US market was 'a critical step' in Honda's overseas expansion. In 1959, American Honda was established as Honda Motor's wholly owned sales subsidiary. The first sales in the US were in September 1959 with three motorcycle lines, the Dream, Benly and Honda 50[2] (Honda Worldwide Home 2017). The market share of Honda Motor in the US motorcycle market reached over 50 per cent by 1965 (Runde & Rond 2010).

[2] 50 stands for 50 cc displacement of engine.

The success in the motorcycle business convinced the headquarters in Japan that sales of automobiles in the US market would be profitable. As a consequence, eight years after the company entered the auto business, in 1970, the N600 went on sale (Honda Worldwide Home 2017). The Civic was introduced in 1973 and its CVCC version reached the market in 1975. In 1974, the Civic two-door sedan was sold at $2150, while it cost over $2500 to purchase a Chevy Vega (Ingrassia 2010). The success in small cars made advancing into other segments feasible.

In 1979, a four-door sedan Accord (mid-sized passenger car) and a sports car Prelude were added to the line-up (Covello 2002). In 1986, the Acura marque was launched, signalling the company's entry into the luxury sedan segment (Covello 2002). In 1990, the company stepped into the luxury sport segment with the Acura NSX (WardsAuto 1990). In 1995, the company entered into the minivan segment with the Odyssey (WardsAuto 1995). In 1997, the CR-V was launched, showing an initiative to enter the mid-sized crossover utility vehicle segment (WardsAuto 1997). In 2005, the company entered the small-sized pickup segment with Ridgeline (WardsAuto 2005). Both moves proved successful over time as Americans' enthusiasm for light trucks (including SUVs, pickups and minivans) and crossover utility vehicles took off in the early 1990s and 2000s respectively. Figure 3.3 depicts Honda Motor's product scope expansion. Lines with different colours represent Honda's sales change in different segments over the years. The starting point of each line coincides with the company's entry into a given segment for the first time.

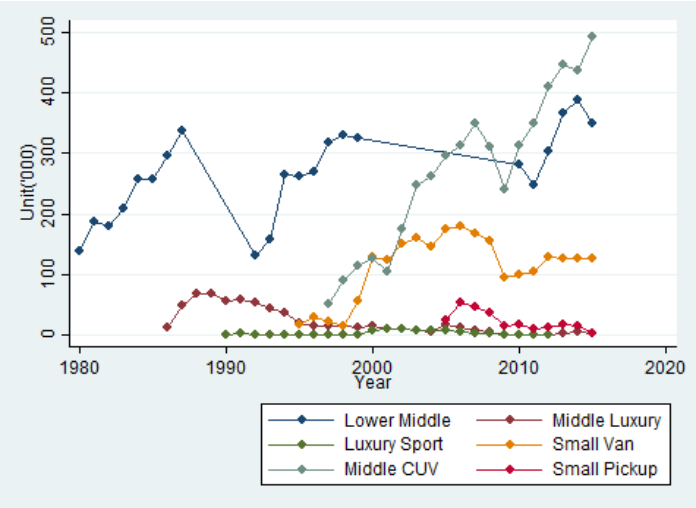

Figure 3.3. Honda's product scope expansion (WardsAuto 1980–2015).

3.6 BMW's product scope expansion

If Honda Motor was a fresh graduate into the car business, then BMW was a veteran fighter in the marketplace. The latter's reputation had been built up through its achievements in motor racing, which date back to the 1930s. For example, the BMW 328 won the 2-litre class in the 1938 Mille Miglia (Boeriu 2015). This heritage in performance vehicles had bearing on the company's segment scope expansion path. Before the expansion gained momentum, the company had relied on compact luxury sedans such as the 1500 and 2002, which were launched in 1962 and 1968 respectively (Covello 2002). Both featured high performance. For example, the 1500 and 2000 reached a top speed of 92 mph and 104 mph respectively (Covello 2002). Although these car lines helped BMW to relieve the financial difficulties it had faced in the late 1950s, the Bavarian automaker was still too small (its revenue was 1 billion deutschmarks in 1969) and this worried its owner Herbert Quandt (Johnson 2005). In 1970, he appointed von Kuenheim as the new chairman of BMW. Von Kuenheim knew that a product scope expansion strategy was needed (Johnson 2005). However, some preparatory work had to be completed before the segment advancements could be carried out. For example, in 1975, with the help of the newly appointed head of sales

and marketing, Bob Lutz, BMW acquired distribution rights from Max Hoffman and established its own sales subsidiary BMW of North America (Kurylko 2016).

BMW's expansion started from the small-sized luxury sedan segment. It first strengthened its presence in the segment in 1976 with the launch of the 320i (3 series), which replaced the 2002, although the design of basic elements such as suspension and transmission remained similar (Edmunds 2017b). The first model of the 5 series 530i, a middle-level luxury sedan, arrived on US shores in 1975 (Covello 2002). It had a top speed of 120 mph (Covello 2002), and took a mere 9.3 seconds to reach 62 mph (Autoevolution 2017). A more luxurious 733i (7 series) was launched in 1978, and it featured comfort and safety features such as an adjustable driver's seat, air conditioning and hydraulic power brakes (Covello 2002). However, the company relied heavily on luxury sedans, predominantly its 3, 5 and 7 series, and the contribution of this segment to annual sales climbed from 28 per cent in 1980 to 99 per cent in 1993 (WardsAuto 1980, 1993).

In response to ever-increasing sophisticated consumer preferences and strong competition from Mercedes-Benz and Lexus in the luxury sedan segment from the late 1980s (Maynard 2003), BMW further expanded its line-up by incorporating a variety of body styles. In 1994, BMW entered the mid-sized luxury SUV segment with three Land Rover lines: the Range Rover, Discovery and Defender.[3] Its first-year sales were 9179 units, capturing a market share of 28 per cent (WardsAuto 1994). Two years later, the company entered the luxury sport segment with the Z3 roadster, which had a 1.9 litre inline four-cylinder engine with 138 bhp horsepower (Motortrend 2017). In 2000, convinced by market research that one out of four BMW owners had an SUV in their garage (Maynard 2003), BMW entered the mid-sized luxury cross utility vehicle (CUV)

[3] On 31 January 1994, BMW acquired British volume motor manufacturer the Rover Group for $1.35 billion (Feast, 1999) in the hope that the Land Rover marque could help the company gain a foothold in the SUV segment.

segment with the X5, with options of 3.0 litre inline six cylinder, 4.4 litre v-8 and a turbo-diesel 3.0 litre inline six cylinder (Meiners 2013). In 2002, the company entered the small specialty segment with the Mini Cooper (WardsAuto 2002). More recently, in Spring 2008, the 1-series coupe was added to the small-sized luxury sedan segment and the new car line won credibility with its precise steering and evenly distributed chassis on any road conditions (Edmunds 2017b). This illustrated that the 'ultimate driving machine' philosophy does not have to be sacrificed for less room and a lower price.

By the end of 2015, BMW owned 18 lines, compared with four lines in 1980 (WardsAuto 1980, 2015), and reported a revenue of 85.536 billion euros (BMW Group 2015). Figure 3.4 depicts BMW's product scope expansion. Lines with different colours represent BMW's sales change in different segments over the years. The starting point of each line coincides with the company's entry into a given segment for the first time.

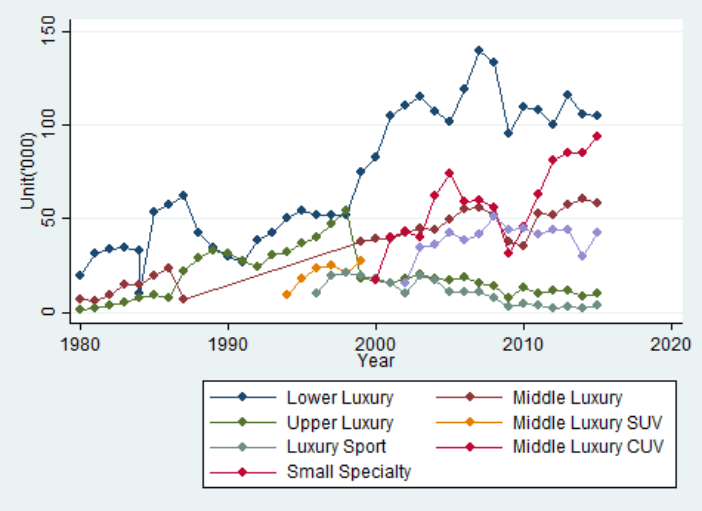

Figure 3.4. BMW's product scope expansion (WardsAuto 1980–2015).

3.7 Observations

The dynamics of foreign automakers' segment choices in the US market described in this chapter leads to the following three observations. First, the foreign firms preferred entering a relatively undefended segment in their initial entry into the host country. By doing so, they not only avoided facing head-on rivalry from domestic

firms in the segment of entry, but also mitigated the risk of being counterattacked in another segment. Firms such as Volkswagen, BMW, Toyota, Nissan and Renault entered the small car segment during the late 1940s and the 1950s. In contrast, it was not until 1959 that the American Big Three introduced their first compact lines, the Chevrolet Corvair, Ford Falcon and Plymouth Valiant (Rae 1984). In 1970, latecomer Honda Motor also chose the small car segment as its entry point. This choice was reasonable. In 1967, the share of Chevrolet Corvair in General Motors's annual sales was 0.6 per cent, the share of Ford Falcon in Ford Motor's annual sales was 4.5 per cent and the share of Plymouth Valiant in Chrysler's annual sales was 6 per cent (White 1971). Further, for those entering the segment in the 1980s, it was still not too late. In 1980, small car sales accounted for only 16 per cent of domestic automakers' sales (WardsAuto 1980). (See Figure 3.5).

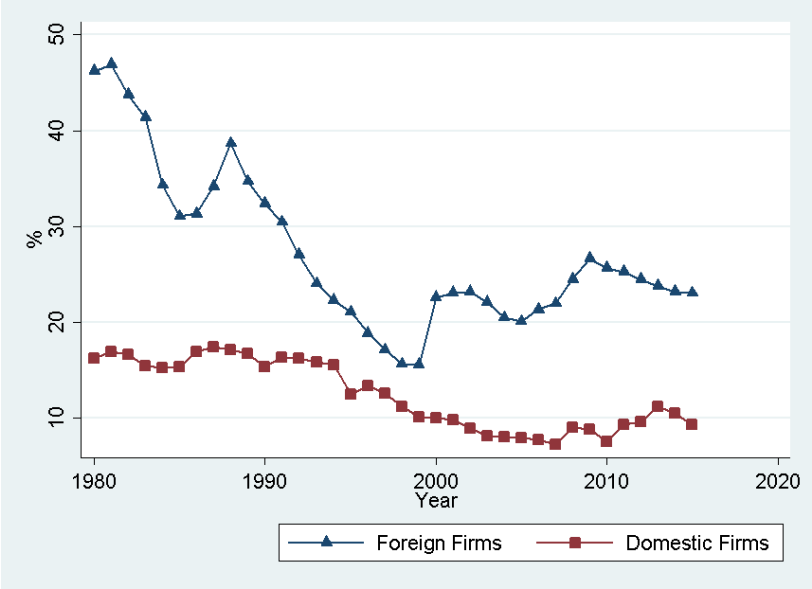

Figure 3.5. Small car contribution in automakers' annual sales: Domestic v. Foreign (WardsAuto 1980–2015).

My second observation is that foreign automakers often re-entered the same segment over time. For example, Honda re-entered the small car segment twice: with the Civic in 1973 as a replacement for the N600 and with the Civic/CVCC in 1975.

Similarly, BMW replaced its 2002 series with the 3 series in 1976, and added the 5 series and the 7 series in 1976 and 1978 respectively. They thus re-entered the luxury sedan segment three times during the 1970s. As mentioned earlier, the company's choice of this segment was largely built upon its heritage in making performance cars. Performance such as high top speed and fast acceleration was a critical feature of a luxury car. Further, besides their prior experience in the segment, they may have considered their rivals' reactions when deciding on which segment to re-enter. As von Kuenheim stated, 'You go some place where there is more or less no competition.' (Johnson 2016). By 1980, luxury sedan sales represented a mere 2 per cent of domestic automakers' sales (WardsAuto 1980) (see Figure 3.6). This indicates that domestic automakers did not commit many resources to the luxury sedan segment in their product scope, which is also how they treated the small car segment.

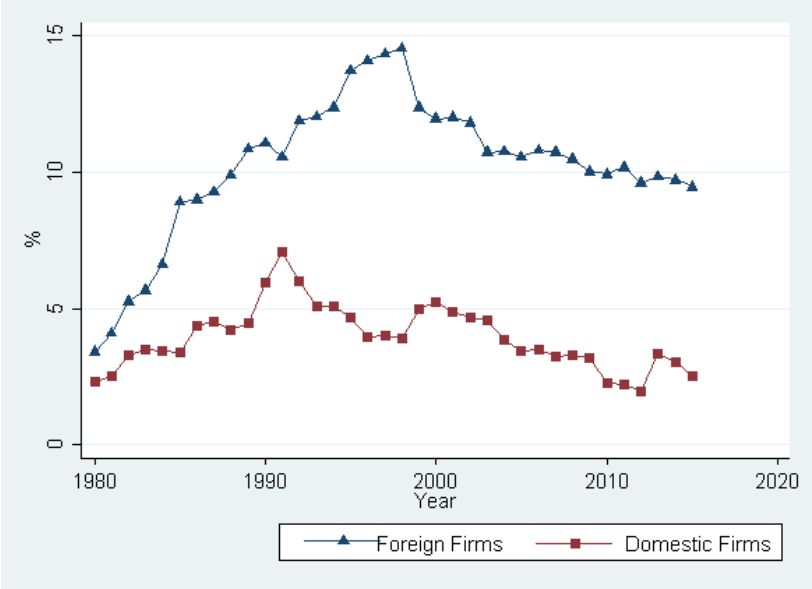

Figure 3.6. Luxury sedan sales contribution in automakers' annual sales: Domestic v. Foreign (WardsAuto 1980–2015).

My third observation is that after initial entry into a host country, foreign automakers also advanced into segments they had not entered before. For example, Honda Motor entered the luxury sedan segment in 1986, the minivan segment in 1995

and the small-sized pickup segment in 2005. Similarly, BMW entered the mid-sized luxury SUV segment in 1994, the mid-sized luxury CUV segment in 2000 and the small specialty segment in 2002. Indeed, all these moves formed part of both companies' expansion paths.

Clearly, in any of the above three situations, the core decision a foreign firm needed to make was which product segment to enter. There are two lines of thinking to potentially explain foreign firms' product segment entry decisions. I developed hypotheses from both, as discussed in the next chapter. The first one—a hypothesis based on arguments from mutual forbearance—emphasises consideration for future retaliation by rivals in current segment entry decisions, and the second—based on the organisational learning perspective—emphasises the effect of past experience on current segment entry choices.

Chapter 4: Theory and Hypotheses

4.1 Mutual forbearance hypothesis: Make today's decision based on anticipation of rivalry tomorrow

Entering an existing or a new product segment is an essential part of foreign firms' growth strategy (Koçak & Özcan 2013). Product segment entry will extend organisations' scope of operations in terms of the customers they serve and the products they provide (Thompson 1967). These entries will increase the footprint overlap among multi-segment rivals and influence their subsequent entry behaviours, among which, mutual forbearance is notable.

The basic idea of mutual forbearance is that when firms meet over multiple markets, their rivalry level tends to attenuate in these markets (Barnett 1993; Edwards 1955; Karnani & Wernerfelt 1985). This is because the expectation of future retaliation by rivals in any overlapping markets (not limited to the focal market) will deter a focal firm from initiating an aggressive action such as price cuts or market entry (Schelling 1960). Therefore, a focal firm's strategic decisions in the present will likely be made with due consideration for any potential future retaliation by its multimarket rivals.

It is widely acknowledged among scholars in the economics and strategic management fields that the first formal articulation of the 'mutual forbearance hypothesis' appeared in Edwards's (1955) seminal paper 'Conglomerate bigness as a source of power' on collusive behaviour among American conglomerates. He observed that large firms meet in multiple industries and their rivalry appears to weaken in overlapping markets.

Anecdotal evidence is consistent with the mutual forbearance idea. In the early 1990s, Northwest Airlines entered the West Coast markets with low fares. Continental Airlines, the dominant airline in West Coast routes, should have responded by undercutting its own prices in these routes, thereby competing head-on with Northwest.

Instead, Continental cut fares in another common market, Minneapolis, where Northwest was the dominant player. Soon after, Northwest withdrew its price cuts in the West Coast markets, and subsequently, Continental withdrew its price cuts in Minneapolis (Nomani cited in Golden & Ma 2003). As Kahn (1986, p. 51) explained, 'When you have the same six carriers meeting each other in market after market, there is a danger of softer competition. It's not in their interest to insult one another excessively.'

Empirical work has also consistently supported the notion of mutual forbearance. Gimeno and Woo (1996) found that multi-route contact significantly weakened the rivalry among US airlines. Alexander (1985) reported a positive impact of the number of multimarket contacts on the average service charge ratio in a demand deposit market. Baum and Korn (1996) reported that commuter air carriers' route entry rates were lower in a route where they had a high level of multi-route contact with incumbents.

4.1.1 Product segment entry and multi-segment contact

When it comes to product segment or market entry, the effect of multimarket contact is likely to be non-linear. At a low level of segment overlap (multi-segment contact [MSC]) with the existing firms in a segment, a focal firm will be motivated to enter that segment to exploit two benefits. First, the focal firm can build up its deterrence against future attacks. By entering into a given segment, it is signalling its ability to respond vigorously if attacked (Porter cited in Karnani & Wernerfelt 1985). In effect, additional segment entries can lock in a focal firm's competitors in the current interfirm competitive relationship and keep them in check (Baum & Korn 1999). If its multi-segment rivals violate the tacit collusion, a focal firm can punish them in any overlapping segment by adopting either tactical moves such as offering discounts or

strategic moves such as segment entry (Chen & MacMillan cited in Baum & Korn 1996).

Secondly, focal firms are able to collect information about their rivals. Entering a given segment increases opportunities to observe and learn about rivals' capabilities (Jayachandran, Gimeno & Varadarajan 1999). Specifically, increasing contact points with its rivals can add to a focal firm's competitive intelligence, which will help it to increase the accuracy of interpretation and reduce the miscalculation of its rivals' entry moves in the future (Stephan & Boeker 2001). The learning process also facilitates a focal firm's awareness of interdependence with its rivals, which becomes part of its collective memory and reduces the uncertainty it will face in future segment entries (Jayachandran, Gimeno & Varadarajan 1999; Weick 1995).

At a high level of MSC in a given segment, the focal firm has already established credible deterrence through its presence in multiple segments (Jayachandran, Gimeno & Varadarajan 1999; Schelling 1960) and familiarised itself with rivals' reaction techniques; hence, the marginal gain from an additional segment entry will be smaller than at a low level of MSC. Taken together, a focal firm's marginal gain from entering a given segment will increase but at a decreasing rate with its MSC level in that segment (see Figure 4.1).

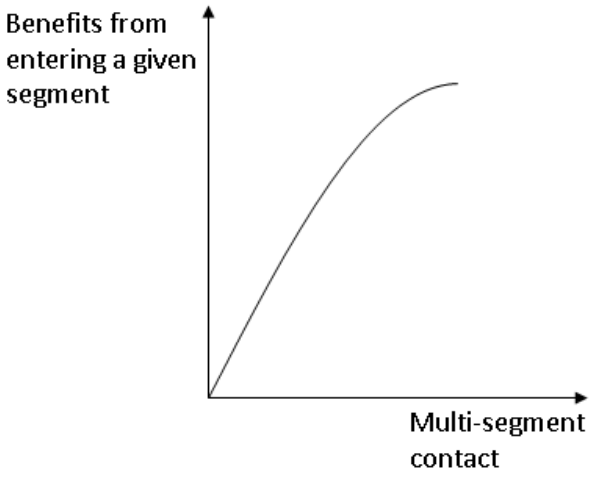

Figure 4.1. The relationship between benefits from entering a given segment and multi-segment contact.

Alongside the benefits mentioned above, a cost function operates simultaneously. First of all, as its MSC level with rivals in a given segment rises, a focal firm will have more segments exposed to rivals. These segments can serve as rivals' countermove targets. As game theory (Heil & Robertson 1991) predicts, cooperative behaviour brings about cooperative behaviour, whereas breaking the status quo can transform the competitive relationship into a non-cooperative mode. In other words, entering a given segment is associated with additional risks of being counterattacked. Specifically, the costs such as a fall in sales volume associated with entry into a given segment will increase at an increasing rate as a focal firm's segment overlap level with rivals in that segment increases because more contact points will transform into counterattack targets and sources of revenue loss.

Secondly, a focal firm's entry into a given segment might trigger modelling behaviour from its rivals, which in turn will intensify the rivalry level in a given segment and erode the market share of a focal firm. The rivals are motivated to do so because the presence of a focal firm signals profitability (Stephan & Boeker 2001), and also, by showing that they have the capability to follow an industry leader, top executives in rival firms can obtain support and lock in resources from relevant

members (Deephouse 1999). Hence, the joint costs stemming from rivals' counterattacks and modelling behaviour will increase at an accelerating pace as a focal firm's MSC level with rivals increases (see Figure 4.2).

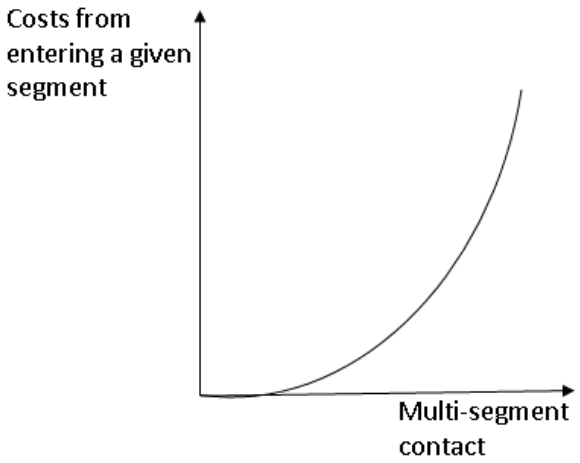

Figure 4.2. The relationship between costs from entering a given segment and multi-segment contact.

As the anticipated benefits associated with the rising segment overlap increase at a decreasing rate while the anticipated costs increase at an increasing rate, the net effect of MSC on the probability of entry into a given segment will be non-linear (see Figure 4.3). At low ranges of MSC, the benefits outweigh the costs, and this encourages entry. At high levels of MSC, in contrast, the costs outweigh the benefits, and this encourages forbearing from entry. As a consequence, the entry probability of a focal firm into a given segment peaks at moderate levels of MSC. Taking together the above arguments, I predicted:

Hypothesis 1 (H1): A foreign firm's probability of entering a given product segment will first increase and then decrease with the extent of multi-segment contact it faces with rivals in that segment.

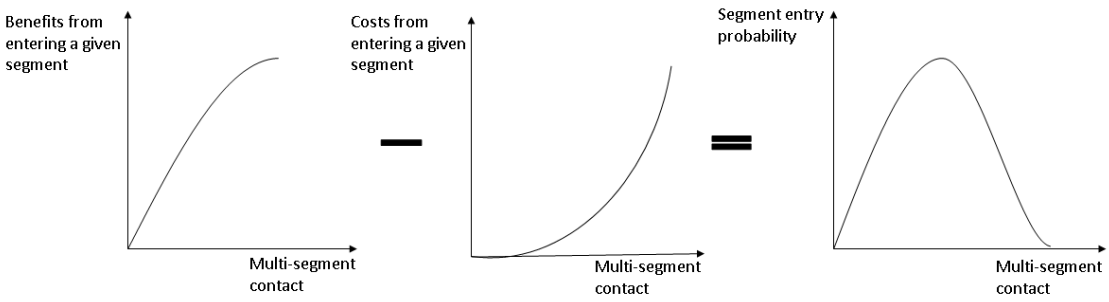

Figure 4.3. Latent mechanisms for Hypothesis 1 (Haans, Pieters & He 2016).

4.2 Organisational learning perspective: Learning from the past and tackling uncertainty

In the mutual forbearance hypothesis above, segment entry decision is affected by the anticipation of future responses from rivals, regardless of potential entrants' own characteristics. In contrast, the organisational learning perspective predicts that experiential learning will develop routines guiding foreign firms' decisions about which product segment to enter in a host market (Levitt & March 1988). By developing routines, firms can reduce the uncertainty in a product segment (Cyert & March 1963).

According to the organisational learning perspective, repeated usage of one routine (e.g., an operating procedure) will lead to specialisation in using it while rendering alternatives unnoticed (Christensen & Bower 1996). Although accumulated experience in using one type of routine may increase firms' efficiency in making a particular type of decision such as market entry, it also raises the risk that they will narrow their search area and focus on exploiting existing routines instead of exploring new ones because the cost of doing so is lower than stepping out of this 'competency trap' (Levitt & March 1988; March 1991) until they reach a 'dysfunctional extreme' (Miller & Friesen 1982). This logic also holds at the individual level, where, according to cognitive theory (Duhaime & Schwenk 1985; Prahalad & Bettis 1986), decision-makers will develop a cognitive map by including prior courses of action in a particular type of decision and automatically take the same course of action when making a new

decision of the same type. For example, Maitland and Sammartino (2015) showed that a mining firm's top executives drew on heuristics such as experiential learning in assessing the investment environment and making an acquisition decision in a politically hazardous country.

Empirical findings have generally supported the organisational learning argument in different contexts. Haleblian, Kim and Rajagopalan (2006), in their study on the banking industry, found that the more prior acquisition experience a firm had, the higher the likelihood that the firm would make subsequent acquisitions. In the same vein, in a context of organisational change in the newspaper industry, Amburgey, Kelly and Barnett (1993) found that a newspaper's probability of changing its content and frequency of publication increased as the number of prior such changes increased. Similarly, Henisz and Delios (2001) reported that Japanese firms relied more on their international experience in deciding whether or not to locate their plant in a given country when they lacked plant location experience in that country.

4.2.1 Product segment entry and segment experience

Besides entering a segment for the very first time, a focal firm can also re-enter a given segment. This can be done by either replacing an existing product line with a new product line[4] or adding a new product line alongside existing product lines in the same segment.[5] Applying the organisational learning argument to segment entry, I argue that a focal firm will tend to re-enter a segment where it is already present because its current strategy is likely to follow the same direction as its past strategy (Miller & Friesen 1980). The logic is as follows. Once a focal firm enters and operates in a product segment, it will begin to acquire specialised knowledge and capabilities relevant to that segment in areas such as supplier relationships, design skills, production techniques, users' expectations and after-sales service. Its costs in operating in that

[4] For example, Renault replaced the Dauphine with the R8 in the small car segment in 1962.
[5] For example, Nissan added the Bluebird alongside the Datsun 1000 in the small car segment in 1959.

segment will decrease at a decreasing rate with its experience in the segment. This is the concept behind the 'declining learning cost curve' (Asher 1956; Nelson & Winter 1982).

If we apply this learning curve to the segment entry scenario, as the marginal cost of entering an additional segment decreases, a focal firm's incentives for entering a given segment will increase but at a decreasing rate. Further, all the experience in operating in a particular segment will be stored as routines and will become part of the organisational memory, which can be retrieved by the focal firm whenever it makes another product segment entry decision thanks to information technology (Smith & Green 1980).

Like any strategic action, product segment entry is carried out by individuals. They work in different units within the focal firm and perform coordinated tasks such as design and manufacturing. Their training and working experience will accumulate and form procedural memory (Ullman 2004) through which knowledge learned is sequential and tacit. For example, in doing a market survey for the feasibility of launching a new car, marketing researchers learn to go through a sequence of procedures. First, they observe consumers' behaviour and identify their needs. Second, they do interview and find out other new features consumers like to add. Third, they communicate with design staffs about results of the survey. This type of memory tends to stay with a person even if associated skills have been practiced with intervals (Cohen & Bacdayan 1994).

The afore-mentioned routine-based learning perspective is built upon a premise that firms can enhance productivity by performing the same task repetitively without interruption. However, in real business world, rare events occur. These events will interrupt the routinized activities and provide another learning opportunity. In this process, firms can discover the shortcomings of the existing method and search for new ways of organizing their activities (Haunschild & Rhee 2004). Christianson, Farkas,

Sutcliffe and Weick (2009) recorded how the roof collapse during a snow storm, an unexpected event spot the weaknesses in routines and transformed organizational identity at the Baltimore and Ohio Railroad Museum. The event informed the museum's management that the collection of artefacts were insufficiently covered by insurance and the emergency response plan was poorly developed. In addition, the roof collapse acted as a catalyst in the museum's identity shift from an academic institution to a commercial attraction. The event received a huge amount of media coverage and public support, which indicated more engagement with the general public was necessary.

In a situation of segment entry, a focal firm's exposure to rare events facilitate the knowledge building in areas such as product quality, consumer expectations and emergency response in a product segment. This will in turn increase their likelihood of staying in the same segment over time. First, one effective way to address the issue in a rare event (e.g., a product recall) is to fix the technical problem and launch a new model.

Second, as the focal firm fixes an accumulative number of product or service defects over time, it will become more skilful in providing products or services of higher quality at lower cost. This is the logic of learning curve mentioned earlier. In a study to examine the learning effect of accidents on US commercial airlines, Haunschild and Sullivan (2002) showed that as the number of prior flight accidents caused by a single reason increased, the number of subsequent flight accidents caused by the same reason would decrease.

Third, the focal firm can also acquire expertise in public relations for future use when another accident occurs. Effective communication with the media, consumers and other stakeholders is pivotal in maintaining a firm's reputation (Dean 2004). For example, Schultz, Utz and Göritz (2011) argued that firms communicating apology and

sympathy were more likely to earn high reputation than those communicating only necessary information after a crisis event.

Hence, facing lower costs together with easier access to solutions under both normal and rare operational scenarios, a focal firm is more likely to re-enter a product segment where it has accumulated operating experience. As a result, I predicted:

Hypothesis 2 (H2): A foreign firm's probability of entering a product segment will increase at a decreasing rate with its cumulative experience in the segment (see Figure 4.4).

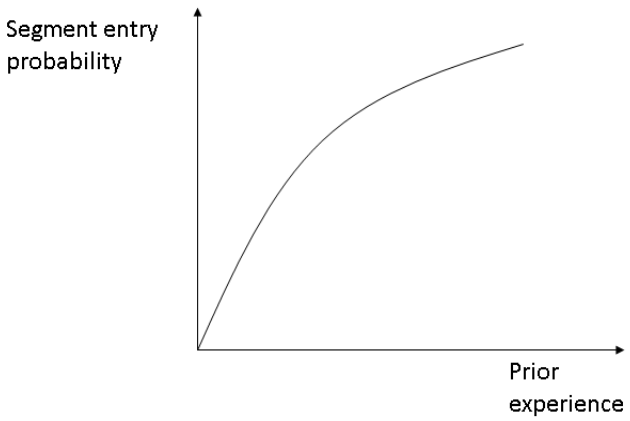

Figure 4.4: Relationship between segment entry probability and prior experience.

4.3 Interaction effects between mutual forbearance and organisational learning arguments

If MSC and cumulative segment experience have curvilinear and positive impacts on the likelihood of segment entry respectively, what will occur when the two effects operate together? At a low to moderate level of MSC, when the anticipated benefits outweigh anticipated costs, a focal firm with more segment experience will have a higher propensity to enter a given segment than firms with less segment experience. This is because the costs of doing so are lower for more experienced firms as a result of their more established routines. At a moderate to high level of MSC, when anticipated costs outweigh the anticipated benefits, the need to forbear from entering a

given segment is greater for more experienced firms than for their less experienced counterparts because the former have more learning investments to lose (from any potential retaliation by rivals) than the latter. These learning investments may include financial resources and human capital already invested to develop routines such as operating procedures in a given segment. Further, it should be noted that loss of learning investments can occur in any of the overlapping segments, not limited to the segment at risk of entry. This would increase the anticipated costs if entry triggers retaliation across one or more of the overlapping segments.

Another possible explanation for the steeper downward part of the inverted U-shaped curve is the accumulated exchange of signals and competitive intelligence. A more experienced firm has a higher awareness of its interdependence with multi-segment rivals and the associated costs of further encroaching upon these rivals' territory than a less experienced firm (Heil & Robertson 1991). In other words, the competitive history stored in a focal firm's memory will also accelerate the forbearance process.

Besides the reasons given above, a focal firm's tendency to adhere to its prior strategic path in dealing with multi-segment competition might be caused by the resistance to change from members within the firm (Thomas & Hardy 2011). Pursuit of a novel path at the expense of well-functioning existing competitive relationship with rivals will change the allocation of resources among business subunits. For example, a proposed change of a university's positioning towards vocational education will be resisted by arts and humanities faculty (Hannan & Freeman 1984). They are concerned about their payment and job security if courses in their field are downsized.

Similarly, if a firm with sufficient experience with dealing with multi-segment rivals in a segment decides to update its deterrence and retreat from that segment less frequently than it should, the segment manager and staffs will question the legitimacy of

headquarter's decision. They do so because moving away from maintaining an appropriate level of multi-segment ties would trigger negative consequences to their segment and their compensation is linked to business performance (Finkelstein & Hambrick 1989; Murphy 1985). First, insufficient deterrence against future attacks will make their segment vulnerable to such events. Second, an indecisiveness in scaling back product launches might send wrong signals to rivals and ignite a price war.

Overall, the perceived decline in their segment performance would propel subunit staffs to challenge the corporate-level strategy regarding multi-segment competition. Therefore, top management with more experience regarding multi-segment competition tends to behave in a more conspicuous and determined manner in maintaining and strengthening the existing multi-segment contact pattern with rivals. By doing so, they can minimize the risk of growing tension in headquarter-subunit relationship a change may cause.

Interestingly, Stephan et al. (2003) proposed a similar moderating role of a firm's prior experience in a market in the relationship between multipoint contact and market entry. They found that a hospital led by a longer-tenured chief executive officer (CEO) was more likely to follow an inverted U-shaped relationship between its multimarket contact level in a service market and its likelihood of entering that service market than a hospital led by a shorter-tenured CEO. They argued that longer-tenured CEOs were more aware of the focal hospital's position in the marketplace and the multimarket ties in which it was embedded than shorter-tenured CEOs. In other words, as industry experts, they knew when to accelerate and slow down their hospitals' entry process. Essentially, my arguments on the strengthening effect of a focal firm's segment experience on the main effect of MSC on segment entry probability resonate with Stephan et al.'s (2003) arguments. The difference lies in the level of analysis for the prior experience variable. In my study, the focal foreign firm's segment operating

experience was measured at the firm-segment level, whereas in Stephan et al.'s (2003) study, the focal hospital's market experience was measured at the firm-individual level.

Taking the above arguments together, both the upward and downward part of the quadratic curve depicted in H1 will be steepened. In other words:

Hypothesis 3 (H3): The curvilinear impact of multi-segment contact on product segment entry probability will be stronger for foreign firms with more segment experience than those with less segment experience (see Figure 4.6).

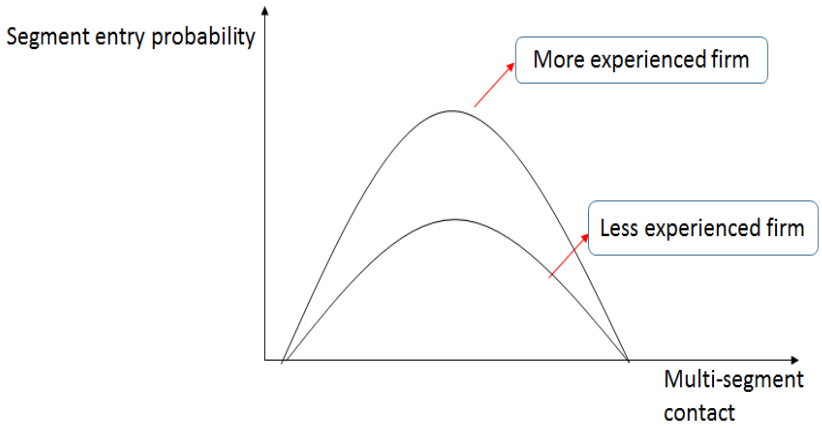

Figure 4.6. Amplifying effect of prior experience on relationship between segment entry probability and multi-segment contact.

Chapter 5: Data and Method

5.1 Industry setting

Since the end of the 1970s, the US domestic car makers, mainly the Big Three, General Motors, Ford and Chrysler, have had to face escalating competition from foreign automakers, especially Japanese firms. The share of import cars in the US market increased from 18.2 per cent in 1975 to 26.5 per cent in 1980 (Salpukas 1981). A mix of factors contributed to this change in the competitive landscape. First, the oil crisis in 1973, and again in 1979, pushed up gasoline prices, which increased demand for fuel-efficient small cars. For example, in Michigan, the gasoline price increased from 77 cents per gallon in January 1979 to $1.13 per gallon in December 1979, representing a 46.75 per cent increase within one year (WardsAuto 1979).

Second, domestic automakers were unaware of the growing popularity of small cars. The Big Three largely neglected the cheap end of the market, only putting in half-hearted efforts (Adams & Brock 1986), if any, and when they realised that a shift of consumer preference to the ‘small car’ had occurred, many of them were not ready to fight back. Chrysler’s chairman, Lee A. Iacocca, warned in June 1980, ‘Today, as Japanese imports flood the market, we are caught a bit short of our planned-for products and capacity (to make small cars)’ (cited in WardsAuto 1980, p. 13), In analysing the reason that domestic producers had not committed to the segment, White (1971) claimed that the recognition of mutual interdependence among the Big Three hindered any one of them from initiating an entry to the small car segment. If the rising sales of compact cars by foreign firms in the mid-1950s was a temporary blow, their continuous influx throughout the 1960s and 1970s caused serious trouble and eventually brought rivalry to the industry, literally ending the era of Detroit’s dominance.

The threats from imports provided an opportunity for domestic producers to reorganise their operations. However, they did not face the challenge by transforming

internally; instead, they lobbied the federal government to restrict imports (Crandall 1984). As early as mid-1975, the United Auto Workers, the industry's labour union, called for a dumping investigation against seven automobile-exporting countries. In 1976, the Treasury Department decided that it would stop the investigation given the Council on Wage and Stability's statement that no evidence of dumping was found (Nelson 1996). However, public sentiments against the 'unfair' competition from imports had been raised. In response, foreign original equipment manufacturers began to consider opening production plants in the US. In 1978, Volkswagen opened a plant in Westmoreland, Pennsylvania, to build Rabbits, signalling the first local production by a foreign automaker (Arnholt & Keenan 1996). Further, in 1979, under the blow from the oil shortage and together with the insufficient financial resources and adjustment time to develop its small car models, the smallest automaker of the Big Three, Chrysler, was on the verge of bankruptcy. The company received a loan guarantee worth $1.5 billion from the Carter administration in January 1980 (Johnson 2005). This event drew nation-wide attention and sympathy towards the laid-off workers, and the labour contract concessions soon turned into irresistible political pressure to take action on imports.

In January 1981, Ronald Reagan was inaugurated as the fortieth US president (Weisman 1981). The new administration faced a dilemma. They were reluctant to impose trade restrictions because that would harm the president's credibility as a proponent of free trade. At the same time, they could not neglect the mounting public sentiments and Congressional pressure. In early 1981, Senator John Danforth introduced a bill to impose quotas on automobile imports (Destler 1991). The compromise was the imposition of a voluntary export restraint (VER) on automobiles from Japan. In May 1981, the Japanese Ministry of International Trade and Industry announced that Japanese automakers would cap their exports of passenger vehicles at 1.68 million units annually in the next three years (Berry, Levinsohn & Pakes 1999). In

response, in 1982, Honda Motor, being the first among Japanese firms, started local production of the Accord in a new plant next to its motorcycle plant in Marysville, Ohio (Arnholt & Keenan 1996). Other Japanese firms followed suit. Nissan Motor launched a transplant in Smyrna, Tennessee, in 1983. Interestingly, Toyota Motor took a more cautious move by launching a joint venture with General Motors in Fremont, California, in 1984 (Arnholt & Keenan 1996).

The VER remained in operation until 1994 (Pollack 1994). Further, on 22 September 1985, five major industrial countries signed an agreement, the Plaza Accord, to devalue the US dollar through collaborative intervention on foreign exchange markets. The US dollar depreciated by 40 per cent between 1985 and 1987 (Frankel 2015). The effect on auto imports to the US was that their price in terms of US dollars increased, which diminished the price difference between domestic and foreign automobiles. Given the stronger home currency and weakened price competitiveness of their products, more foreign automakers joined the wave of inward foreign direct investment in the US auto industry. For example, Mazda Motor launched a local plant in Flat Rock, Michigan, in 1987; Toyota Motor opened its first wholly owned plant in Georgetown, Kentucky, in 1988, producing Camry; and BMW opened a plant in Spartanburg, South Carolina, in 1994, rolling out the 318i model (Arnholt & Keenan 1996).

The implementation of the North American Free Trade Agreement on 1 January 1994 (Ford 2008) rendered easier access to the whole North American market for producers in the region. For foreign automakers, this meant local production was more desirable than staying outside. Daimler began to produce Mercedes-Benz in Tuscaloosa, Alabama, in 1997 (Bloomberg 2015); Hyundai launched its assembly plant in Montgomery, Alabama, in 2005; and more recently, in 2009, Kia opened its West Point, Georgia plant (Kurylko 2013). Noticeably, foreign firms' share of American car

production increased from 1 per cent in 1979 to 46 per cent in 2014 (WardsAuto InfoBank cited in Association of Global Automakers & American International Automobile Dealers Association 2015).

The limit on the import sales volumes under the VER and a better sense of the market trend through local production pushed foreign automakers into penetrating other segments (Pollack 1994) using the profits earned in the small car segment in earlier years. Rivalry between domestic producers and their foreign counterparts intensified. For example, Cadillac and Lincoln, once the dominant players in the luxury segment, began to lose their top positions to Audi, BMW, Lexus and Infiniti in 1999 (Wernle 2015). Between 1987 and 2015, the joint market share of the Big Three slipped from 70.17 per cent to 44.53 per cent (WardsAuto 2016). As a result, frequent entry into and exit from a segment represented by the withdrawal and introduction of models became a norm that continues today. During this process, innovations ranging from Toyota's lean production method to the more recent 'vehicle to vehicle' communication, together with stricter regulations such as the Corporate Average Fuel Economy standards, have made the future of this industry beyond imagination. The industry's total sales hit a record of 17.5 million units in 2015 after climbing back from 10.4 million units at the height of the global financial crisis (Harwell & Mufson 2016), attracting more foreign producers to join the marketplace given the huge purchasing power of American consumers and the resilience of the US economy.

5.2 Data collection

The population used in this study is all the foreign car producers in the US market. I used data on entries of foreign automobile manufacturers into product segments in the US market between 1987 and 2015. I sourced this data from various editions of *Ward's Automotive Yearbook. Ward's Automotive Yearbook* is an annual publication by WardsAuto (1987–2015) that has produced industry data for more than

90 years. WardsAuto is the transportation/automobile division of Penton, an information services company.

The US car industry offers a useful context for analysing segment entry decisions. First, the industry has fairly clear market segments. In my sample, the number of segments increased from 21 in 1987 to 27 in 2015, which reflects an increasing level of sophistication in consumer preferences over time. Segmentation is based on three dimensions: body size, price and vehicle type. For example, a large luxury SUV is an SUV with large body size (associated with large engine size) and high price (associated with high-end features). Second, many foreign firms sell car lines in more than one segment, which makes MSC relevant and measurable in this context. For example, in 2015, Volkswagen and Toyota sold cars over 13 and 19 segments respectively. If we want to know Volkswagen's MSC level with Toyota in the lower end of the luxury sedan segment (lower luxury), we need to count the number of their overlapped segments.[6] Since both firms had presence over multiple segments, it appeared more likely that they met each other in other segments besides the focal segment (lower luxury). Third, identifying 'entry' is relatively easy; once a new car line is introduced into a segment, it can be counted as an 'entry'.

The data structure is panel data and the number of firms and segments changed over time. For example, in 1990, there were 20 foreign firms and 23 segments and hence 460 firm-segment combinations (20 × 23), whereas in 2015, there were 14 foreign firms and 27 segments and hence 378 combinations (14 × 27) in the sample. Given that the focus of my empirical analysis, as I will explain later, is on the segment entry propensity of foreign firms, my unit of analysis in this study is the firm-segment-year. For each year, I tried to predict the likelihood of a (foreign) firm entering a given

[6] For details on calculating MSC, please see Section 5.4 on independent variables.

segment. To facilitate this, I added up the number of firm-segment observations for each year in the data, and arrived at 4425 firm-segment-year observations in total.

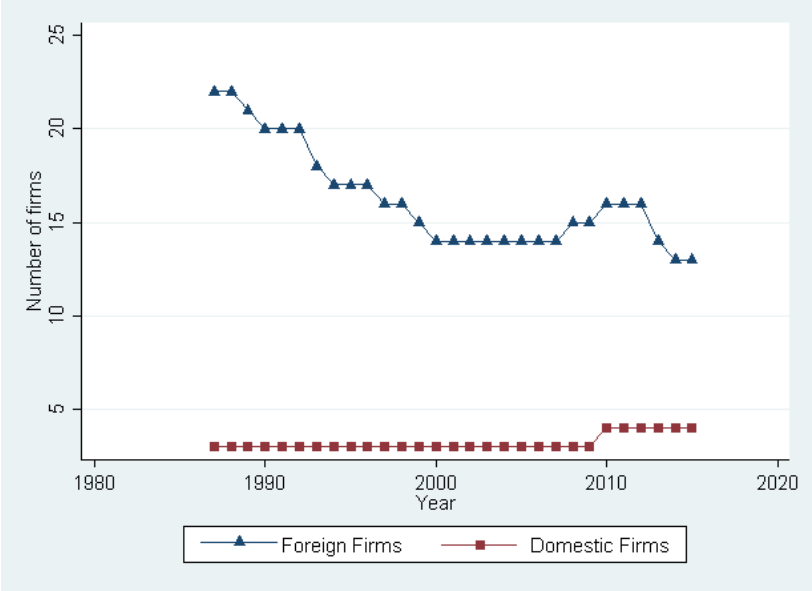

Figure 5.1 Change of the number of firms, 1987–2015: Foreign v. Domestic (WardsAuto 1987–2015).

Figure 5.1 depicts the change of the number of foreign and domestic firms over the years, with the blue line representing foreign firms and the red line representing domestic firms. The number of domestic firms stayed relatively stable over the period of 28 years. Noticeably, only three firms, namely the Big Three, were present from 1987 to 2009. In 2010, electric car maker Tesla Motors joined the market, increasing the number of firms from three to four in the domestic auto industry.

In contrast, foreign firms demonstrated more fluctuations. The number of foreign firms decreased dramatically, from 22 to 14, between 1987 and 2000, during which time a large number of market exits and mergers and acquisitions occurred. In 1993, Peugeot Citroën and Zastava exited the US market. In 1994, Daihatsu exited the market. Ford acquired Jaguar in 1989 (Prokesch 1989) and Volvo in 1999 (Bradsher 1999). In 2000, General Motors acquired Saab (White 2000).

Between 2001 and 2007, the number of foreign firms stayed at 14. It rose steadily to 16 in 2012. In 2008, Indian automaker Tata Motors entered the market through an acquisition of two British luxury brands Jaguar and Land Rover (Chandran 2008), making the number of foreign firms 15. In 2010, Chinese automaker Geely and Dutch automaker Spyker entered the market while Japanese automaker Isuzu exited the market, increasing the number of foreign firms to 16. Geely entered US market by acquiring Swedish automaker Volvo in August, 2010 (Nicholson 2010). Similarly, Spyker bought Saab from General Motors in 2010 (Reed 2010).

Since 2013, this number dropped again to 13 in 2015. In 2013, German automaker Porsche and Dutch automaker Spyker exited the market, decreasing the number of foreign firms to 14. The latter's subsidiary Saab filed for bankruptcy in December, 2011 (Cole 2012) and forced its parent company to withdraw from US market. In 2014, Japanese automaker Suzuki exited the market, further reducing the number of foreign firms to 13. As a leader of small cars, Suzuki left US market mainly because its models did not fit the consumers' needs there (Tabuchi 2012).

5.3 Dependent variable

I coded *Segment entry (E_{imt})* as a dummy variable that takes the value of 1 when firm i enters a product segment m at year t, and 0, otherwise (Henisz & Delios 2001). Essentially, entry occurs when a firm introduces a new car line into a given segment. Entry into a segment can include both de novo entry (entering for the first time) and repeated entry. In the latter case, a firm may add a new product line alongside existing lines, or replace existing lines in a given segment. For example, in the 1988 model year, Toyota entered the 'upper middle' (higher priced mid-sized sedan) segment for the first time with an updated version of the Camry. Until 1999, the Camry was the only line offered by the company in this segment. In the 2000 model year, Toyota re-entered the upper middle segment by adding a new line called the Prius Hybrid. And in the 2006

model year, Toyota added yet another line—the Camry Hybrid—which represented its third entry into the same segment (WardsAuto 1988–2015). As an example of re-entry by replacing an old car line, in 2011, Hyundai replaced the Tiburon with the Veloster in the small specialty segment (WardsAuto 2010–2011).

5.4 Independent variables

5.4.1 Multi-segment contact

Hypothesis 1 proposed that a foreign firm's probability of entering a given segment would first increase, and then decrease with the extent of MSC it faced with rivals in that segment.

Measurement of multimarket contact in previous empirical works can be grouped into three categories based on unit of analysis:

1. Market level, using a simple count measure (Alexander 1985; Greve 2008). For example, Greve (2008), at the market level, measured multimarket contact by the count of firms that had multimarket competitors in the Norwegian insurance industry.
2. Dyad level, using count and scaling. For example, Baum and Korn (1999) measured the multimarket contact between a pair of airlines. Each overlapped route was weighted by the centrality of that route to each airline i and j. The measure was basically the ratio of the total number of overlapped routes over the sum of the number of routes airlines i and j operated.
3. Firm-by-market level, using the average measure (Evans & Kessides 1994; Fuentelsaz & Gómez 2006; Young et al. 2000). For example, Firm 1 had two rivals, Firm 2 and Firm 3, in Market A. Firm 1 and Firm 2 also met in Market B. Further, Firm 1 and Firm 3 also met in Market C. The multimarket contact Firm 1 faced in Market A would be a ratio of the number of overlapping markets with rivals outside Market A over the number of rivals Firm 1 had in Market A, that

is, 2/2 (see Young et al. 2000). Since my study examined a focal firm's probability of entering a given segment, dyad-level and market-level measures were both inappropriate so I followed the firm-in-market-level measure that was coined by Gimeno and Jeong (2001).

I measured MSC as a focal firm's segment overlap with its multi-segment competitors in a given segment in a given year. Following Haveman and Nonnemaker's (2000) procedure, I first identified the focal firm's multi-segment rivals in each segment. If the focal firm met a rival in other segments besides the focal one, that rival was treated as a multi-segment rival to the focal firm. Next, for each of the focal firm's multi-segment rivals present in the focal segment, I calculated the number of other segments in which they overlapped. Then, for each of the focal firm's multi-segment rivals, I calculated the ratio of the number of overlapped segments over the total number of segments in which a focal firm was present. Finally, I summed this ratio across the focal firm's multi-segment rivals and arrived at the aggregate MSC level the focal firm faced in a given segment in a given year.

In mathematical formulae (Haveman & Nonnemaker 2000):

$$MSC_{ijt} = \sum_{j \neq i} \left[MPR_{ijt} \times D_{jmt} \times \frac{\sum_{n=1}^{k} (D_{int} \times D_{jnt})}{\sum_{n=1}^{k} D_{int}} \right]$$

where $MPR_{ijt} = 1$ if firm j is a multi-segment competitor of the focal firm i in year t, and otherwise 0; $D_{jmt} = 1$ if firm j is present in segment m at year t, and 0 otherwise; $D_{int} = 1$ if focal firm i is present in segment n at year t, and 0 otherwise; and $D_{jnt} = 1$ if firm j is present in segment n at year t, and 0 otherwise. The number of segments focal firm i is present in year t is denoted by k.

For example, in 2013, Honda was present in 12 segments. To calculate the MSC level Honda faced in the large luxury CUV segment, first, I determined who Honda's multi-segment competitors were, that is, firms that shared other segments besides large luxury CUV with Honda. It turned out to be four companies: Daimler, Ford, Nissan and

Volkswagen. Second, I calculated the ratio of the number of overlapping segments with Honda over the total number of segments in which Honda was present (i.e., 12) for each of Honda's multi-segment competitors. Daimler shared six segments with Honda, so this ratio was 0.50 (i.e., 6 / 12). Ford shared 11 segments with Honda so the ratio was 0.92 (11 / 12). Nissan shared 11 segments with Honda so the ratio was 0.92 (11 / 12). Volkswagen shared nine segments with Honda so the ratio was 0.75 (9 / 12). Finally, I summed the ratio for each multi-segment competitor of Honda (i.e., 0.50 + 0.92 + 0.92 + 0.75 = 3.09), and hence, Honda's MSC level in the large luxury CUV segment in the year 2013 was 3.09.

5.4.2 Prior experience

I further proposed that as a foreign firm's experience in a given segment increased, its probability of re-entering this segment would increase at a decreasing rate (Hypothesis 2). I captured experience using two variables: time since a focal firm's first entry into a given segment, and its accumulative sales in a given segment.

5.4.3 Time since initial entry (Time)

This variable measures the elapsed time since a firm entered a given segment for the first time. It captures the accumulated learning effect in that segment. Firms will establish routines in operating in a given segment over time. They tend to re-enter that segment to exploit the cost savings provided by these routines. Hence, a positive sign was expected. A log transformation was applied to reflect the diminishing return of accumulative experience.

5.4.4 Past sales in the segment (Sales)

This variable refers to a firm's cumulative sales in a given segment over prior years, that is, the number of cars sold in a segment over years up until the current year. It captures the learning effect of successful prior segment entries. A positive sign was expected because positive feedback of prior actions will lead to redeployment of these

actions in current opportunities (e.g., re-entering a product segment) according to the Carnegie school of thought (Cyert & March 1963; Greve 2003). A logged sales was used in the estimation to capture the effect of a decreasing learning curve.

5.5 Control variables

Since other factors may also affect a focal firm's product segment entry decision, I included control variables to ensure that estimation of results would not be biased. These control variables can be grouped into three categories: (1) segment-level factors that capture variations in properties of segment structure; (2) firm-segment-level factors that vary across firm-segment combinations; and (3) firm-level factors that are associated with heterogeneous resource deposits and innovative capabilities across firms. In the following section, I discuss the segment-level, firm-segment-level and firm-level control variables I included in my analyses.

5.5.1 Segment level

5.5.1.1 Segment density

The existence of a large number of incumbents in a given segment reflects the profit opportunity. This may encourage firms to enter that segment first. Then, as more entrants arrive, the rivalry level in the segment rises, which will discourage further entry. For example, Hannan and Freeman (1987) found an inverted U-shaped relationship between American labour unions' founding rate and the number of existing unions. To control for this curvilinear effect of density, I included both the *segment density* and the *segment density squared term*. I expected a positive sign for the linear term while a negative sign for the quadratic term. In the context of my study, segment density was measured as the number of car lines in a given segment in the previous year.

5.5.1.2 Segment size

Large sales in a given segment in the previous year indicate a great demand for the car lines the segment provides. Automobile manufacturing involves large fixed costs and a manufacturer needs to produce 400,000 units per year to achieve economies (White 1971). Specifically, automakers are attracted to large segments because they can reduce the unit cost of production by exploiting the economies of scale present in such segments. Hence, I controlled for segment size the total number of cars sold in a given segment in the previous year. I expected a positive sign for segment size.

5.5.1.3 Segment growth rate

In addition, a high sales growth rate in a given segment signals strong potential for sales growth in the future, which attracts firms to enter the segment. Hence, I controlled for segment growth rate and expected a positive sign. Segment growth rate is a ratio of the change in size of a given segment from two years before the segment entry ($year_{t-2}$) to the previous year of segment entry ($year_{t-1}$) over the size of a given segment two years before the segment entry ($year_{t-2}$). In mathematical formulae:

Segment growth rate = (segment size in $year_{t-1}$ – segment size in $year_{t-2}$) / segment size in $year_{t-2}$.

5.5.1.4 Segment concentration

Finally, I controlled for the extent to which a given segment was dominated by a few large players as segment structure will affect a firm's decision to enter a given segment. According to oligopoly theory, fewness of sellers in a market will make these sellers recognise their interdependence and collude (Baum & Korn 1996). By setting up barriers to entry such as the required economies of scale, control of key supplies, established dealership and brand loyalty together with their market power to retaliate, the existence of oligopolists can deter potential entrants from entering a given segment (White 1971). Hence, I expected a negative sign for segment concentration.

I used a two-firm concentration ratio to measure the extent to which a segment was dominated by a few automakers. This is a ratio of the sum of sales of the two largest firms in a given segment over the total sales in that segment. Higher value indicates higher concentration.

5.5.2 Firm-segment level

5.5.2.1 The number of entries

I controlled for *the number of entries made*, which is the cumulative number of entries into a given segment by a firm until the current year. Firms tend to show repetitive momentum in making their strategic decisions (Amburgey & Miner 1992). Hence, firms with more entries made into a given segment are more likely to re-enter that segment than firms with fewer entries made into a given segment. I expected a positive sign for the number of entries.

5.5.2.2 Most recent number of entries

I controlled for a firm's total number of entries made to a given segment during the previous year of segment entry for two reasons. First, firms may repeat a strategic choice made recently (Greve 1996) and this effect will diminish as time elapses (Amburgey, Kelly & Barnett 1993). For example, Greve (1996) showed that a radio station was more likely to adopt a new market position when it had just changed its market position. Secondly, firms tend to avoid updating their product lines on a frequent basis. In other words, no firms will re-enter a given segment immediately after an entry. This is because new product lines may erode the market share of recently launched product lines. Hence, I expected either a positive or negative sign for most recent number of entries.

5.5.2.3 Most recent sales

Similarly, I also controlled for *most recent sales*, that is, the number of cars sold by a firm in a given segment during the previous year of segment entry to capture both

the immediate momentum effect and the cannibalisation effect of selling cars in a given segment. I expected either a positive or negative sign for most recent sales. All values of the number of entries, most recent number of entries and most recent sales were logged.

5.5.2.4 Firm-by-segment density

The total number of a firm's own lines in a given segment can also affect its subsequent entries into the same segment. As sales of new lines may erode sales of existing lines, a firm with more existing lines in a given segment is less likely to enter that segment again than those with less existing lines. Hence, I expected a negative sign for firm-by-segment density.

5.5.2.5 Multi-segment rivals' size

Firms are reluctant to enter a given segment when large rivals who can use market power as barriers to entry are present, making the segment unattractive. Hence, I controlled for a firm's multi-segment rivals (MSRs)' size. I expected a negative sign for MSRs' size. First, similarly to my calculations for the MSC level a firm faced in a given segment, I identified its multi-segment rivals. Second, I determined the total number of cars sold for each multi-segment rival. Finally, I summed these multi-segment rivals' sales and arrived at their overall size. In mathematical formulae (Haveman & Nonnemaker 2000):

$$MSR\ size_{imt} = \sum_{j \neq i} \quad (MPR_{ijt} \times D_{jmt} \times \sum_{n=1}^{k} \quad Sales_{jnt})$$

where MPR_{ijt} = 1 if firm j is focal firm i's multi-segment rival at year t and 0 otherwise. D_{jmt} = 1 if firm j sells car lines in focal segment m at year t and 0 otherwise. $Sales_{jnt}$ is firm j's sales in segment n at year t. k is the number of segments in which firm j is present at year t.

5.5.3 Firm level

5.5.3.1 Firm size

Larger firms are more likely to enter a given segment with new product introduction than smaller firms because the former possess a higher level of financial and R&D resources than the latter. Hence, firm size was controlled for and it was measured as the total number of cars sold by a firm. I expected a positive sign for firm size.

5.5.3.2 Product diversification

A diversified firm is more likely to expand into multiple segments. For automobile firms, financial success is largely reflected by their ability to adapt their products to the needs and tastes of different customers (Chamberlin cited in Dickson & Ginter 1987). A generalist firm such as General Motors that pursues a 'cars for all purses and purposes' product development strategy is more likely to introduce a new car line to a given segment than a specialist firm such as Ford Motor in its early years, when the company kept the Model T for over nearly 20 years in only one colour—black. In Henry Ford's words, 'Any colour they wanted, as long as it's black.' (Ingrassia 2010). Hence, I controlled for a firm's product diversification in the previous year, using Berry's (cited in Feinberg 1985) method:

$$\text{Productdiv} = 1 - \sum_{n=1}^{k} S_n^2$$

where a firm sells cars in k segments and S_n is the share of its number of lines in the nth segment over its total number of car lines across k segments. A larger value of Productdiv indicates a higher level of product diversification of a firm. I expected a positive sign for product diversification.

5.6 Modelling specification

The outcome of interest in my study was whether or not a foreign firm entered a given segment in a given year. Since the dependent variable was a set of discrete

choices rather than a continuous measure such as firm sales, a limited dependent variables method was appropriate (Wiersema & Bowen 2009). I estimated the probability of segment entry using the discrete time logit model (Allison cited in Henisz & Delios 2001) since I did not know precisely the time point when an entry occurred between $Year_{t-1}$ and $Year_t$. The focal event here is a firm's entry into a given segment.

$$H_{imt} = bX_{imt} + cX_{mt} + \varepsilon_{imt}$$

where H_{imt} is referred to as the hazard rate that firm i enters segment m at the beginning of year t. I also performed a log transformation for H_{imt} to guarantee that the hazard rate was bounded between 0 and 1.

$$\log\left[\frac{Himt}{1-Himt}\right] = bX_{imt} + cX_{mt} + \varepsilon_{imt}$$

where b and c are coefficient estimates of a vector of firm-segment-year level independent variables and a vector of segment-year level independent variables respectively. They indicate the change in the log-odds of entry associated with a one-unit increase in each independent variable. All independent variables and control variables were measured with a one year lag (t−1), and entry likelihood was measured for the current period (t).

The error term ε_{imt} includes all the unobserved factors that may have influenced the likelihood of entry. I included dummy variables for each firm, each segment, each year and each firm-segment combination to allow the intercept to change with different combinations of firm, segment and year. The modelling used maximum likelihood estimation, which chose estimators b and c to maximise the log-likelihood function.

The general form of the full model in this study is expressed in the following mathematical equation:

$$\Pr(\text{Entry}) = b_0 + b_1\text{Multi-segment contact} + b_2\text{Multi-segment contact}^2 + b_3\text{Time since initial entry} + b_4\text{Past sales in the segment} + b_5\text{Multi-segment contact} \times \text{Time since initial entry} + b_6\text{Multi-segment contact}^2 \times \text{Time since initial entry} + b_7\text{Multi-segment}$$

contact × Past sales in the segment + b_8Multi-segment contact^2 × Past sales in the segment + b_9Segment density + b_{10}Segment density^2 + b_{11}Segment size + b_{12}Segment growth rate + b_{13}Segment concentration + b_{14}The number of entries + b_{15}Most recent number of entries + b_{16}Most recent sales + b_{17}Firm-by-segment density + b_{18}Multi-segment rivals' size++b_{19}Firm size + b_{20}Product diversification + ε

5.7 Estimation issues

Estimation may suffer from two endogeneity issues. First, there may be the issue of omitted variable bias. Besides the control variables mentioned earlier, other unobserved factors may also have affected foreign firms' likelihood of entering a given segment. Omitting these factors in the analysis could bias the coefficient estimates. One possible factor is the advertising and marketing expenditure at the firm-segment level. A firm with higher advertising and marketing expenditure in one segment is more likely to enter that segment with a new product line than to enter another segment in which it has lower advertising and marketing expenditure. To partially mitigate this problem, following Yu, Subramaniam and Cannella's (2009) suggestion, I used a fixed-effects panel model (in Stata, the 'xtlogit' command with the fe option). In a fixed-effects panel model, each firm's autonomous baseline hazard of entering a given segment in a given year varied with each firm-segment combination,[7] which to some extent, captured the effects of time-invariant omitted variables.

Second, observations with the same firm may be correlated. This is different from the autocorrelation in a time series study where error terms that belong to different time periods are correlated. The issue here refers to a situation in which the same firm's probabilities of entering different segments are correlated. This is because multi-division firms tend to coordinate their product development across different divisions so that the corporate-level product strategy can prevail. In the fixed-effect model I

[7] In setting the data into panel data, I used the xtset command in Stata and generated firm-segment dummies.

employed, firm dummies were generated to account for the effect of the intrafirm coordination strategy.

Chapter 6: Results

In this chapter, I report the results of the empirical study. First, I present descriptive results, including the change of the number of entries by foreign and domestic automakers in the sample, descriptive statistics of all variables and their correlations in the model. Next, I present the estimation results of the logistic regression.

6.1 Descriptive results

There were 733 entries during my observation window between 1987 and 2015. Among these entries, 462 were made by foreign automakers, representing nearly two-thirds of the total number of entries. Of these entries by foreign automakers, 149 were de novo entries into a segment and 313 were re-entries. Foreign automakers made repetitive entries twice as many as de novo entries. Figure 6.1 shows the number of segment entries made by domestic and foreign automakers over the years.

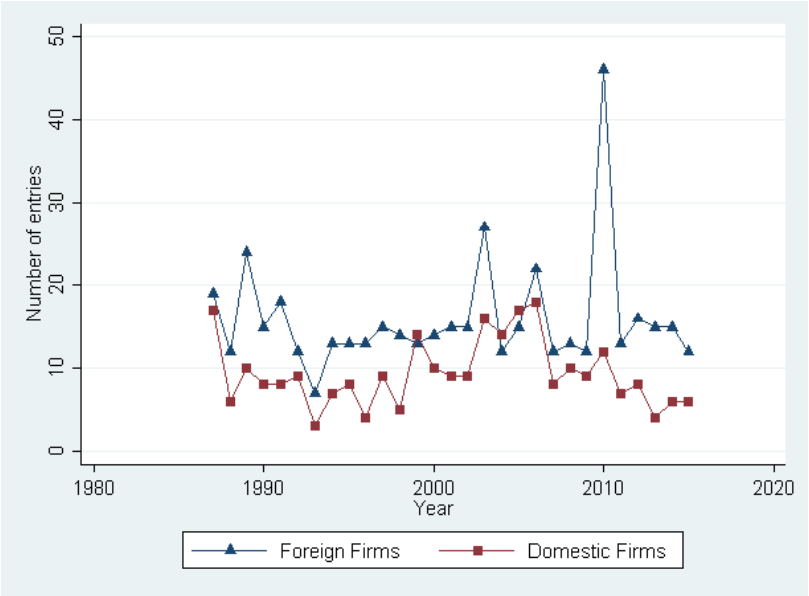

Figure 6.1 Change of the number of entries, 1987–2015: Foreign v. Domestic (WardsAuto 1987–2015).

Several observations result from Figure 6.1. First, domestic and foreign firms followed a similar pattern in terms of segment entries. A certain modelling behaviour

appeared to exist between these two groups of automakers as the number of segment entries they made increased and decreased simultaneously over time. Second, the number of segment entries by foreign firms experienced a sudden surge between 2009 and 2010. For example, in 2010, Daimler entered the small-sized luxury CUV segment with the Mercedes GLK; Mazda entered the lower end of the small-sized sedan segment with the Mazda 2; Fuji entered the mid-sized CUV segment with the Subaru Outback. Coincidentally, the year 2010 also led the industry's sales recovery since the height of the global financial crisis (Wayland & Burden 2016).

Table 6.1 shows the means, standard deviations, and minimum and maximum values of dependent, independent and control variables. Table 6.2 shows the correlations among these variables. Multicollinearity refers to a situation when independent variables are highly correlated (Wooldridge 2016). It may cause the standard errors of a given variable to be inflated and generate larger coefficient estimates. I found that multi-segment contact and multi-segment rivals' size were highly correlated ($r = 0.772$, $p < 0.01$). I checked the variance inflation factor (VIF) of these two variables using the 'collin' command in Stata. Each variable had a VIF of 2.47, which is well below 10 (rule of thumb); hence, including both variables did not bias the estimation. To further detect any multicollinearity problem, I first performed an ordinary least squares estimation of the model, that is, the model that contained all independent variables except for interaction terms. Then, a VIF test was followed. All variables' VIFs were below 4 except for the linear term and squared term of the same variable, that is, MSC and MSC^2; Segment density and Segment $density^2$. These tests offer reasonable confidence that multicollinearity was not a major issue in this study.

Table 6.1. Descriptive Statistics

	Mean	S.D.	Min	Max
1. Entry probability	0.096	0.294	0.000	1.000
2. The number of entries	1.052	0.573	0.000	2.944
3. Most recent number of entries	0.118	0.276	0.000	1.609
4. Most recent sales	0.065	0.091	0.000	0.741
5. Firm size	151.400	151.835	0.031	625.651
6. Firm-by-segment density	1.766	1.223	1.000	10.000
7. Product diversification	0.862	0.134	0.000	0.945
8. Multi-segment rivals' size	919.730	370.841	0.000	1680.992
9. Segment density	13.962	6.199	1.000	30.000
10. Segment density^2	233.358	189.153	1.000	900.000
11. Segment size	75.601	71.991	0.097	276.030
12. Segment growth rate	0.087	2.557	−0.999	168.170
13. Segment concentration	0.463	0.158	0.215	1.000
14. MSC	4.066	1.814	0.000	10.500
15. MSC^2	19.822	15.855	0.000	110.250
16. Time (in log)	1.662	1.370	0.000	4.205
17. Sales (in log)	0.620	0.681	0.000	3.201
18. MSC × Time	7.785	7.673	0.000	39.246
19. MSC^2 × Time	41.804	52.509	0.000	412.078
20. MSC × Sales	2.514	2.948	0.000	17.849
21. MSC^2 × Sales	11.887	16.295	0.000	116.296

Table 6.2. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10
1. Entry probability										
2. The number of entries	0.002									
3. Most recent number of entries	–0.018	0.196*								
4. Most recent sales	–0.086*	0.112*	–0.025							
5. Firm size	–0.127*	0.206*	0.049*	0.412*						
6. Firm-by-segment density	–0.055*	0.504*	0.267*	0.293*	0.454*					
7. Product diversification	–0.063*	0.156*	–0.008	0.213*	0.449*	0.129*				
8. Multi-segment rivals' size	0.026*	0.004	–0.053*	0.075*	–0.275*	–0.099*	0.105*			
9. Segment density	0.070*	0.250*	0.060*	0.120*	–0.150*	0.194*	–0.083*	0.590*		
10. Segment density^2	0.072*	0.234*	0.065*	0.137*	–0.139*	0.191*	–0.080*	0.521*	0.974*	
11. Segment size	–0.007	0.139*	–0.005	0.484*	0.013	0.133*	0.043*	0.528*	0.605*	0.630*
12. Segment growth rate	0.018	–0.020	0.067*	0.001	–0.016	–0.033	0.013	–0.125*	–0.094*	–0.066*
13. Segment concentration	–0.030	–0.193*	–0.067*	–0.097*	0.110*	–0.125*	0.032	–0.453*	–0.675*	–0.619*
14. MSC	0.065*	0.106*	–0.028	–0.024	–0.387*	–0.113*	–0.019	0.772*	0.700*	0.632*
15. MSC^2	0.059*	0.074*	–0.031	–0.042*	–0.395*	–0.138*	–0.112*	0.679*	0.651*	0.613*
16. Time (in log)	0.176*	0.010	–0.120*	–0.250*	–0.678*	–0.302*	–0.232*	0.312*	0.194*	0.167*
17. Sales (in log)	–0.054*	0.449*	–0.011	0.609*	0.518*	0.451*	0.292*	0.032	0.131*	0.133*
18. MSC × Time	0.141*	0.027	–0.105*	–0.161*	–0.600*	–0.265*	–0.149*	0.546*	0.409*	0.373*
19. MSC^2 × Time	0.102*	0.033	–0.087*	–0.108*	–0.500*	–0.219*	–0.159*	0.553*	0.461*	0.438*
20. MSC × Sales	–0.011	0.458*	–0.009	0.525*	0.307*	0.341*	0.234*	0.262*	0.377*	0.374*
21. MSC^2 × Sales	0.015	0.396*	–0.018	0.405*	0.125*	0.214*	0.149*	0.359*	0.477*	0.480*

*$p < 0.01$

Table 6.2 Correlation matrix (continued)

	11	12	13	14	15	16	17	18	19	20
1. Entry probability										
2. The number of entries										
3. Most recent number of entries										
4. Most recent sales										
5. Firm size										
6. Firm-by-segment density										
7. Product diversification										
8. Multi-segment rivals' size										
9. Segment density										
10. Segment density^2										
11. Segment size										
12. Segment growth rate	–0.056*									
13. Segment concentration	–0.435*	0.026								
14. MSC	0.451*	–0.077*	–0.526*							
15. MSC^2	0.446*	–0.050*	–0.473*	0.960*						
16. Time (in log)	0.049*	–0.019	–0.151*	0.413*	0.408*					
17. Sales (in log)	0.378*	–0.050*	–0.073*	–0.006	–0.037	–0.240*				
18. MSC × Time	0.248*	–0.036	–0.301*	0.730*	0.750*	0.867*	–0.147*			
19. MSC^2 × Time	0.327*	–0.033	–0.331*	0.793*	0.867*	0.695*	–0.096*	0.948*		
20. MSC × Sales	0.517*	–0.054*	–0.257*	0.312*	0.275*	–0.030	0.879*	0.129*	0.188*	
21. MSC^2 × Sales	0.555*	–0.046*	–0.334*	0.485*	0.486*	0.122*	0.688*	0.333*	0.417*	0.939*

*$p < 0.01$

6.2 Estimation results

Table 6.3 reports the estimation results. Model 1 is the baseline model, where only control variables have been included. Model 2 adds MSC and its quadratic term (MSC^2) to test the curvilinear effect of multi-segment contact level that a foreign firm faces in a given segment on its probability of entering this segment proposed in Hypothesis 1 (H1). Model 3 adds time since initial entry (Time) to Model 1 to test the positive relationship between a foreign firm's operating experience in a given segment and its probability of re-entering this segment proposed in Hypothesis 2 (H2). Model 4 replaces time since initial entry with sales to capture the successful components of the learning effect on probability of entry and thus further tests Hypothesis 2 (H2). To further test H1 and H2, in Model 5, both MSC variables, that is, MSC and its squared term (for H1), and prior experience variables, that is, time since initial entry and sales (for H2), have been included at the same time. To test Hypothesis 3 (H3), namely, the strengthening effect of a foreign firm's operating experience in a segment on the inverted U-shaped relationship between MSC and entry probability, in Model 6, the interaction term between MSC variables and time since initial entry (i.e., MSC × Time, MSC^2 × Time), MSC, MSC^2 and time since initial entry were added to the baseline model. Similarly, to further test H3, in Model 7, the interaction term between MSC variables and sales (i.e., MSC × Sales, MSC^2 × Sales), MSC, MSC^2 and sales were added to the baseline model.

Table 6.3. Results of Logistic Regression with Probability of Entering a Segment as Dependent Variable

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MSC		0.844**			1.141***	–0.463	0.229
		(0.268)			(0.288)	(0.647)	(0.370)
MSC^2		–0.060*			–0.096***	0.117	0.009
		(0.025)			(0.027)	(0.078)	(0.038)
Time			1.324***		1.194***	0.516	
			(0.236)		(0.246)	(0.533)	
Sales				1.867***	1.299*		–3.433
				(0.468)	(0.529)		(2.306)
MSC × Time						0.610*	
						(0.245)	
MSC^2 × Time						–0.080**	
						(0.030)	
MSC × Sales							2.382**
							(0.870)
MSC^2 × Sales							–0.246**
							(0.085)
Segment density	0.087	–0.065	0.066	0.116	–0.077	–0.100	–0.064
	(0.111)	(0.119)	(0.113)	(0.113)	(0.123)	(0.123)	(0.124)
Segment density^2	0.001	0.004	0.001	0.000	0.004	0.005†	0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Segment size	–0.008*	–0.006†	–0.009**	–0.007*	–0.005	–0.007*	–0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Segment growth rate	1.051**	1.058**	1.009**	1.161***	1.101**	1.031**	1.161***
	(0.330)	(0.329)	(0.345)	(0.342)	(0.350)	(0.349)	(0.344)

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Segment concentration	–0.907	–1.018	–0.686	–0.703	–0.590	–0.762	–0.950
	(1.178)	(1.185)	(1.199)	(1.201)	(1.222)	(1.217)	(1.219)
The number of entries	–2.184***	–2.379***	–4.080***	–2.909***	–4.606***	–4.484***	–3.104***
	(0.320)	(0.331)	(0.489)	(0.381)	(0.520)	(0.511)	(0.397)
Most recent number of entries	–0.437	–0.399	0.279	–0.244	0.361	0.313	–0.259
	(0.302)	(0.302)	(0.324)	(0.308)	(0.326)	(0.325)	(0.310)
Most recent sales	–2.909	–3.072†	–3.391	–4.004*	–4.146*	–3.617†	–4.290*
	(1.821)	(1.813)	(1.869)	(1.828)	(1.882)	(1.893)	(1.882)
Firm-by-segment density	–0.328*	–0.294†	–0.185	–0.330*	–0.156	–0.164	–0.331*
	(0.148)	(0.150)	(0.154)	(0.152)	(0.158)	(0.157)	(0.154)
Multi-segment rivals' size	0.000	–0.001**	0.000	0.000	–0.001**	–0.001*	–0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm size	0.020***	0.022***	0.018***	0.017***	0.019***	0.020***	0.019***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Product diversification	2.445*	1.064	0.535	1.835	–1.468	–0.157	1.127
	(1.220)	(1.392)	(1.361)	(1.250)	(1.557)	(1.581)	(1.446)
Log-likelihood	–526.449	–520.324	–507.770	–517.414	–497.006	–496.296	–505.675
Likelihood-ratio chi-squared	107.680	119.930	145.039	125.751	166.566	167.986	149.229
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Degree of freedom	12	14	13	13	16	17	17
AIC	1076.899	1068.648	1041.540	1060.827	1026.012	1026.592	1045.349

†p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001. Standard errors are in parentheses.

I checked the change of likelihood-ratio (LR) chi-square statistic across nested models to examine the change of statistical explanatory power across these models and determine the best fitted model. In Model 1, control variables were added. The LR chi-square statistic of Model 1 is 107.680 (p = 0.0000, df = 12), which indicates that the control variables jointly fit the model well. Model 2, where MSC and its squared term were added, is statistically significant (X^2 = 119.930, p = 0.0000, df = 14) and shows an increase in model fit over Model 1 (additional X^2 = 12.25, additional df = 2). Model 3, where time since initial entry was added, is statistically significant (X^2 = 145.039, p = 0.0000, df = 13) and also shows an improvement in model fit over Model 1 (additional X^2 = 37.359, additional df = 1). Similarly, Model 4, where sales was added, is statistically significant (X^2 = 125.751, p = 0.0000, df = 13) and also shows a better model fit than Model 1 (additional X^2 = 18.071, additional df = 1). In Model 5, where both MSC measures and prior experience measures were added, shows statistical significance (X^2 = 166.566, p = 0.0000, df = 16) and a large increase in statistical power over Model 1 (additional X^2 = 58.886, additional df = 4). This indicates that a foreign firm's MSC variables and segment operating experience variables, together, have a significant impact on segment entry probability. Noticeably, Model 5 has the highest LR chi-square statistic in all nested models, that is, Model 1 to Model 5. In Model 6, MSC, MSC^2, Time, MSC × Time and MSC^2 × Time were added to Model 1. The model is statistically significant (X^2 = 167.986, p = 0.0000, df = 17) and shows a great improvement in model fit over Model 1 (additional X^2 = 60.306, additional df = 5). In Model 7, MSC, MSC^2, Sales, MSC × Sales and MSC^2 ×Sales were added to Model 1. The added terms are jointly statistically significant (X^2 = 149.229, p = 0.0000, df = 17) and Model 7 shows a better model fit than Model 1 (additional X^2 = 41.549, additional df = 5).

Another approach to comparing the statistical power among models is to use the Akaike Information Criterion (AIC) score. According to Akaike (1973), the model with the lowest AIC score is the best fit to the data. AIC has been largely applied in areas such as biological sciences and remained unknown in the West for a long period, as the original work was written in Japanese, until Burnham and Anderson (2002) introduced an authoritative text in English (Snipes & Taylor 2014). Therefore, I have introduced this test to the field of strategic management and international business. Among the nested models, the lowest AIC score was found in Model 5, which further confirmed that Model 5 is the best model in fitting the data and both MSC measures and prior experience measures should be included in explaining a foreign firm's segment entry probability. Unsurprisingly, both Model 6 and Model 7 had a lower AIC score than Model 1, indicating that the two models with the main terms of MSC, prior experience and their interactions included explain the interest of the phenomenon better than the baseline model, where only control variables are included.

Model 1 is the baseline model, where only control variables are included. The model shows that foreign firms are more likely to enter a given segment that is fast growing ($b = 1.051$, $p < 0.01$). However, contrary to my expectation, they are less likely to enter a given segment where sales are high ($b = -0.008$, $p < 0.05$). This may be caused by potential entrants' concern that level of competition is high in such a segment. Surprisingly, the number of past entries is highly statistically significant and has a negative sign ($b = -2.184$, $p < 0.001$), which indicates that the more entries a foreign firm has conducted into a given segment, the less likely it will enter the same segment again. This is because the focal foreign firm has little motivation to re-enter a segment if it has already had a high level of presence there. It seems that the proposed momentum effect has given way to forbearance effect at a certain level of segment presence. I also found that foreign firms that have more lines in a given segment in the

previous year are less likely to enter the same segment again in the current year ($b = -0.328$, $p < 0.05$). This could be caused by the concern of cannibalisation because adding more lines may erode the sales of existing lines. At the firm level, firm size is highly significant and has a positive sign ($b = 0.020$, $p < 0.001$), which indicates that larger foreign firms are more likely to enter a given segment than smaller foreign firms. In addition, product diversification is statistically significant and positive ($b = 2.445$, $p < 0.05$). A more diversified foreign firm is more likely to enter a given segment with a new product line. Other control variables are statistically insignificant.

In Model 2, the linear term of MSC is statistically significant and positive ($b = 0.844$, $p < 0.01$) and the quadratic term is statistically significant and negative ($b = -0.060$, $p < 0.05$). However, while this is indicative, it is not definitive support for an inverted U-shaped effect of MSC on probability of entry. Further tests are presented in Chapter 7.

In Model 3, time since initial entry is highly statistically significant and positive ($b = 1.324$, $p < 0.001$), which indicates that the longer time a foreign firm stays in a segment, the more likely that it will introduce new product lines to the same segment again, supporting Hypothesis 2.

In Model 4, the other prior experience measure, sales, is also highly statistically significant and positive ($b = 1.867$, $p < 0.001$). This means that a foreign firm with higher sales volume in a segment is more likely to enter the same segment again than a foreign firm with lower sales volume in a segment, further supporting Hypothesis 2. The results of Model 3 and Model 4 jointly indicate that foreign firms are more likely to enter a given segment where they have a high level of cumulative operating experience.

In Model 5, MSC variables and prior experience variables are included simultaneously. The linear term of MSC is highly statistically significant and positive ($b = 1.141$, $p < 0.001$) and the squared term is highly statistically significant and

negative ($b = -0.096$, $p < 0.001$), suggesting support for Hypothesis 1. Time since initial entry is highly statistically significant and positive ($b = 1.194$, $p < 0.001$). Sales is weakly significant and positive ($b = 1.299$, $p < 0.05$). Both results confirmed Hypothesis 2. The results in Model 5 indicate that both consideration of multi-segment rivals' reaction and its own segment experience are included in a foreign firm's segment entry decision-making in the US market.

In Model 6, the linear interaction term between MSC and time since initial entry is statistically significant and positive ($b = 0.610$, $p < 0.05$) and the quadratic interaction term is statistically significant and negative ($b = -0.080$, $p < 0.01$). However, as Haans, Pieters and He (2016) argued, a negative sign for the quadratic interaction term is neither sufficient nor necessary for a steepening effect to occur. Following their suggestion, I conducted a three-step procedure to check whether steepening really occurs. Suppose the simplified form of Model 6 is expressed as follows: Probability of entry = $\alpha Z + \beta_1 MSC + \beta_2 MSC^2 + \beta_3 Time + \beta_4 MSC \times Time + \beta_5 MSC^2 \times Time$. First, I chose two values of the moderator, time since initial entry (Time), $Time_1$ and $Time_2$ and calculated the two turning points MSC_1^* and MSC_2^* using $Time_1$ and $Time_2$ respectively. Second, I chose a distance, a, from the left of each turning point and calculated the slope S_1 at $MSC_1^* - a$ and slope S_2 at $MSC_2^* - a$. Third, I compared the value of S_1 and S_2. If $S_2 > S_1$, the moderator amplifies the inverted U-shaped main effect of MSC on segment entry probability. Let $Time_1 = 1$ and $Time_2 = 3$. When $a = 1$, I found that $S_2 = 0.246$, $S_1 = -0.074$, $S_2 > S_1$, hence, the steepening occurs. Replication of the above procedures in choosing different values of a ($a = 2, 3$) produced consistent results. Therefore, when the time a foreign firm has stayed in a given segment becomes longer, it speeds up both the process of segment entry and forbearance from further segment entry, supporting Hypothesis 3.

Figures 6.2 and 6.3 jointly depict the strengthening effect of time. I split the data into two subsamples. Subsample 1 includes observations for foreign firms that have stayed less than the mean of logged value of time, that is, 2 years in a given segment. Subsample 1 was used in generating Figure 6.2. Subsample 2 includes observations for foreign firms that have stayed more than 2 years in a given segment. Subsample 2 is used in generating Figure 6.3. The inverted U shape in Figure 6.3 is steeper than that in Figure 6.2, supporting Hypothesis 3.

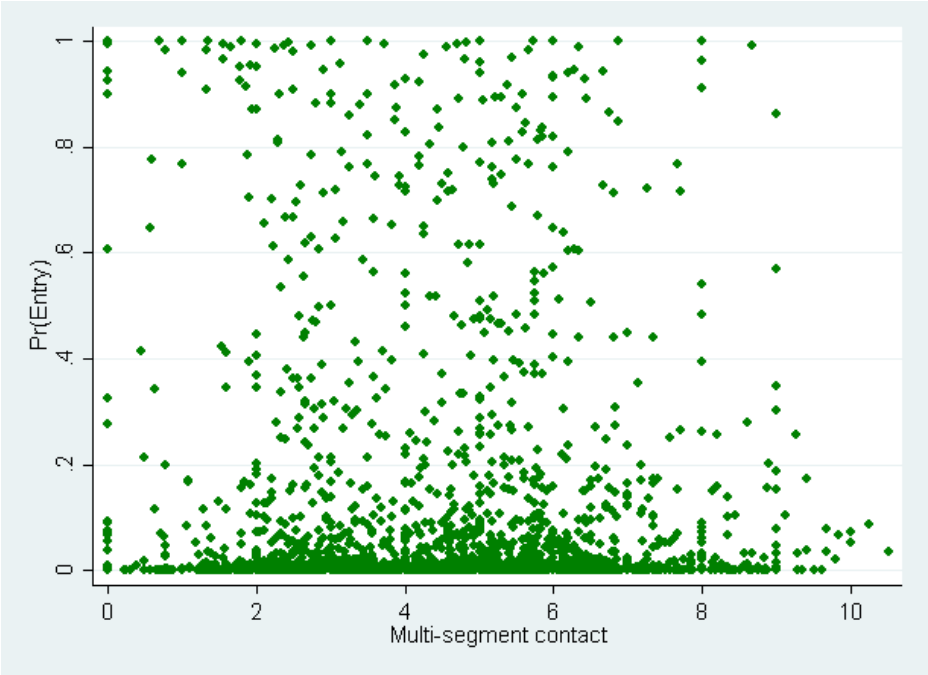

Figure 6.2. The relationship between segment entry probability and multi-segment contact (Time < 2 years).

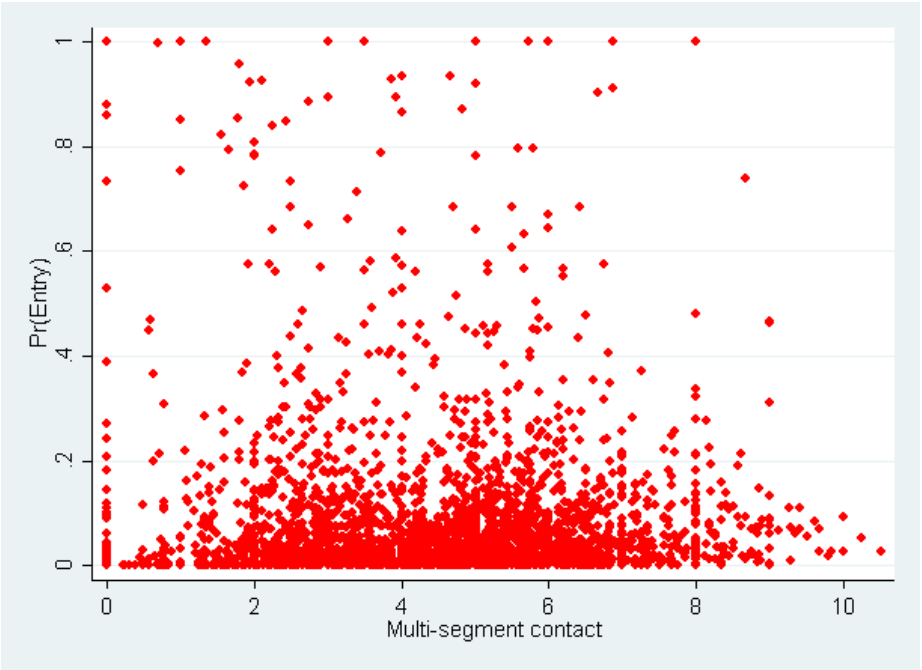

Figure 6.3. The relationship between segment entry probability and multi-segment contact (Time > 2 years).

In Model 7, to further test the moderating role of a foreign firm's prior experience in a given segment on the main effect of MSC on segment entry likelihood, sales replaces time since initial entry as the prior experience measure. Specifically, sales captures the total number of cars sold in a given segment by a foreign firm. The interaction term between MSC and sales is statistically significant and positive ($b = 2.382$, $p < 0.01$). In contrast, the interaction term between MSC squared and sales is statistically significant and negative ($b = -0.246$, $p < 0.01$). I followed the same procedures presented above in Model 6 to test the steepening effect. The slope is larger at higher value of sales than at lower value of sales, as was the case when I used time since initial entry as the moderator. Hence, the steepening effect of sales on the inverted U-shaped relationship between MSC and segment entry probability was also found, further supporting Hypothesis 3.

Chapter 7: Additional Analyses

Several additional analyses were conducted to complement the above main analysis.

7.1 Confirming H1 in Model 2

As suggested by Haans, Pieters and He (2016), I followed Lind and Mehlum's (2010) three-step procedure in testing whether the expected inverted U-shaped effect of a foreign firm's MSC level in a given segment on its likelihood of entering that segment was really found.

The equation in Model 2 can be expressed as follows: Probability of entry = $\alpha Z + \beta_1 MSC + \beta_2 MSC^2 = \alpha Z + 0.844 MSC - 0.060 MSC^2$ where Z is a vector of control variables. First, β_2 needs to be statistically significant and have a negative sign. This condition was met ($\beta_2 = -0.060$, $p < 0.05$).

Secondly, the slope at the low end of MSC needs to be statistically significant and positive and the slope at the high end of MSC needs to be statistically significant and negative. The slope (S) in this equation is the first derivative of probability of entry with regard to MSC, that is, $S = \beta_1 + 2\beta_2 MSC$. At the low end of MSC, that is, when MSC = 0, $S_L = \beta_1 = 0.844 > 0$ ($p = 0.0017 < 0.01$); at the high end of MSC, that is, when MSC = 10.5, $S_H = 0.844 + 2 \times (-0.060) \times 10.5 = -0.416 < 0$ ($p = 0.1622$). For S_H, I could reject the null hypothesis that $\beta_1 + 2\beta_2 \times 10.5 = 0$ at a significance level of about 10 per cent. Therefore, slopes at both end of the MSC range are statistically significant and of the required sign, which means that the second condition was met.

Thirdly, the turning point has to be located within the range of MSC. $MSC^* = -\beta_1/2\beta_2 = 7.03$. Since the range of MSC is between 0 and 10.5 (included), the turning point is close to (1.78 units right to) the median of the range (5.25). The third condition was also met. Hence, an inverted U-shaped relationship between MSC and probability of entry was found, confirming Hypothesis 1 (see Figure 7.1).

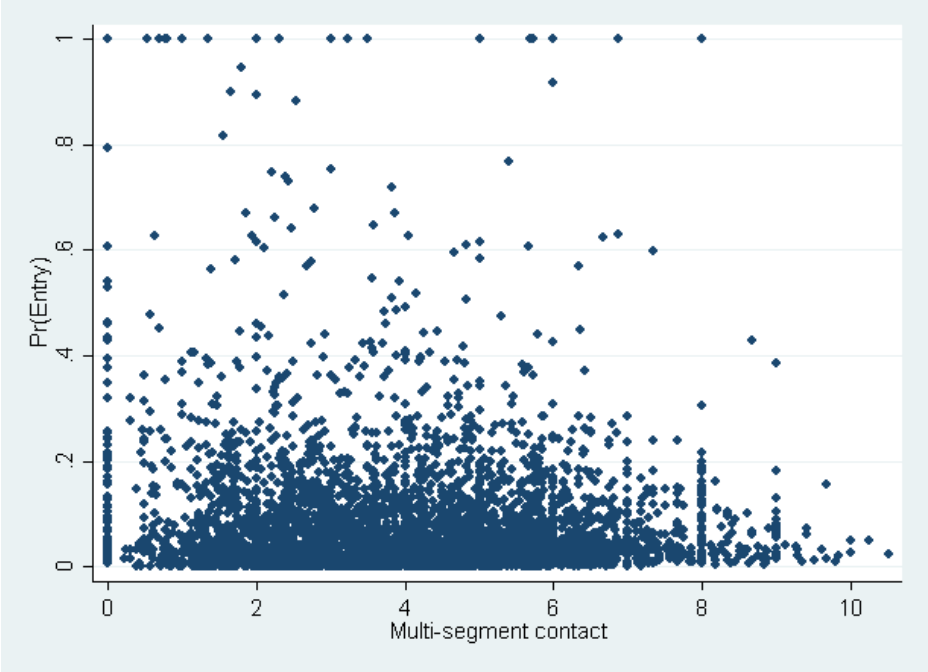

Figure 7.1. The relationship between segment entry probability and multi-segment contact.

7.2 Marginal effects

I also calculated the marginal effects of MSC and prior experience on a foreign firm's probability of entering a given segment using the 'margins' command in Stata.

Multi-segment contact. A 1 percentage point increase from the mean of MSC is associated with 0.207 per cent increase in a foreign firm's probability of entering a given segment, holding other variables at their mean value.

Time since initial entry. A foreign firm's probability of entering a given segment will increase by 0.329 per cent when its time spent in a segment increases by 1 percentage point from its mean value, holding other covariates at their mean value.

Sales. When a foreign firm's number of cars sold in a given segment increases by one percentage point from its mean value, it is 0.461 per cent more likely to enter the same segment in the current year, holding other variables at their mean value.

Notably, the marginal effect of accumulative sales in a segment is slightly higher than that of accumulated years staying in a segment.

7.3 Alternative dependent variable

In the main estimation, the dependent variable is the probability of a foreign firm's entry into a given segment. As mentioned earlier, the entry moves here include both entering a segment for the first time and entering a segment repeatedly. In the latter situation, a foreign firm can re-enter a given segment in two ways. First, it can replace an existing product line with a new product line in a given segment. Second, it can add a new product line alongside existing lines in a given segment. To examine the robustness of results from the main estimation, I conducted another estimation using the same logistic regression and the same control variables and independent variables as in the main estimation with only a change in dependent variable. Here, the new dependent variable is the probability of re-entering a given segment. Interestingly, the results related to the main hypotheses remain the same except that the interaction terms MSC × Sales and MSC^2 × Sales in Model 7 are statistically insignificant (see Table 7.1).

Table 7.1. Results of Logistic Regression with Probability of Re-entering a Segment as Dependent Variable

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
MSC		0.553*			0.991***	–0.946	0.515†
		(0.234)			(0.289)	(0.648)	(0.283)
MSC^2		–0.053*			–0.087**	0.160*	–0.040
		(0.023)			(0.027)	(0.078)	(0.030)
Time			0.929***		0.822***	–0.219	
			(0.225)		(0.236)	(0.543)	
Sales				2.117***	1.124*		2.242***
				(0.327)	(0.510)		(0.656)
MSC × Time						0.765**	
						(0.253)	
MSC^2 × Time						–0.097**	
						(0.031)	
MSC × Sales							0.206
							(0.272)
MSC^2 × Sales							–0.044
							(0.034)
Segment density	0.058	–0.024	0.083	0.118	–0.034	–0.052	0.019
	(0.084)	(0.093)	(0.115)	(0.086)	(0.124)	(0.125)	(0.096)
Segment density^2	0.000	0.002	0.001	–0.002	0.004	0.004	0.001
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)
Segment size	–0.004	–0.003	–0.009**	–0.005*	–0.006†	–0.008*	–0.003
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)
Segment growth rate	0.820***	0.819***	0.941**	0.954***	1.025**	0.959**	0.968***
	(0.217)	(0.216)	(0.337)	(0.234)	(0.342)	(0.341)	(0.233)

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Segment concentration	–0.803	–0.730	–1.016	–0.528	–0.965	–1.172	–0.339
	(0.923)	(0.922)	(1.224)	(0.941)	(1.241)	(1.241)	(0.949)
The number of entries	–1.009***	–1.029***	–3.123***	–2.133***	–3.551***	–3.482***	–2.190***
	(0.167)	(0.169)	(0.462)	(0.243)	(0.490)	(0.483)	(0.247)
Most recent number of entries	–0.148	–0.143	0.187	0.075	0.254	0.208	0.103
	(0.192)	(0.192)	(0.322)	(0.198)	(0.324)	(0.324)	(0.199)
Most recent sales	–1.754*	–1.749*	–2.881	–1.948*	–3.579†	–3.096	–2.035*
	(0.890)	(0.890)	(1.864)	(0.882)	(1.874)	(1.890)	(0.894)
Firm-by-segment density	–0.109	–0.100	–0.291†	–0.083	–0.272†	–0.285†	–0.098
	(0.073)	(0.075)	(0.152)	(0.075)	(0.155)	(0.155)	(0.078)
Multi-segment rivals' size	0.000	0.000	0.000	0.000	–0.001*	–0.001*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm size	0.002†	0.003*	0.017***	0.003**	0.017***	0.018***	0.004**
	(0.001)	(0.001)	(0.004)	(0.001)	(0.004)	(0.004)	(0.001)
Product diversification	3.754*	3.296†	2.271	2.700†	0.841	2.287	2.444
	(1.725)	(1.795)	(1.632)	(1.627)	(1.815)	(1.721)	(1.763)
Log-likelihood	–935.447	–932.544	–494.773	–911.667	–486.654	–484.063	–905.573
Likelihood-ratio chi-squared	84.653	90.459	106.194	132.213	122.432	127.614	144.401
P-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Degree of freedom	12	14	13	13	16	17	17
AIC	1894.894	1893.088	1015.546	1849.334	1005.308	1002.126	1845.146

†p < 0.1; *p < 0.05; **p < 0.01; ***p < 0.001. Standard errors are in parentheses.

Chapter 8: Discussion

Results show that both a foreign firm's segment domain overlap with its rivals and operating experience in a given segment (either measured by time since initial entry or accumulated sales) are statistically significant, indicating that both MSC and prior experience are important factors in segment entry decisions. Specifically, first, an inverted U-shaped relationship was found between a foreign firm's MSC with incumbents in a given segment and its propensity to enter that segment. Secondly, a positive relationship (increasing at a declining rate) was found between a foreign firm's segment operating experience and its probability of entering a given segment. Finally, I found that a foreign firm's segment operating experience strengthens the curvilinear relationship between its MSC and its segment entry probability.

8.1 An inverted U-shaped relationship between segment entry probability and multi-segment contact

The first major finding of this study is an inverted U-shaped relationship between a foreign firm's MSC level in a given segment and its probability of entering that segment. The non-linear relationship found here is consistent with the findings of a few recent studies (e.g., Baum & Korn 1999; Fuentelsaz & Gómez 2006; Haveman & Nonnemaker 2000; Stephan et al. 2003). For example, Haveman and Nonnemaker (2000) found that a savings and loan association's entry rate into a market increased first and then decreased as its multimarket contact level with other savings and loan associations in the market increased. However, not all previous works share this finding. For example, in Baum and Korn's (1996) study, they found that commuter airlines' route entry rates were negatively related to multimarket contact they had with incumbent airlines in a route. They argued that meeting competitors in multiple markets provided the focal firm with a buffer against a potential search for new markets.

When a focal foreign firm faces a low level of segment overlap/MSC with its rivals in a given segment, it will be motivated to enter that segment to exploit two kinds of benefits. First, the focal foreign firm can build or update a credible deterrent against its rivals' possible future attacks (Stephan & Boeker 2001). This deterrent capability is built up through establishing footholds in an increasing number of segments where the focal foreign firm's rivals are already present (Karnani & Wernerfelt 1985). Second, the focal foreign firm can learn more about its multipoint rivals, such as their response techniques and time required for a response (Boeker et al. 1997; Stephan et al. 2003), by increasing the number of contact points with them. In contrast, at a high level of MSC, entering a given segment is likely to yield marginally smaller benefits than at a low level of MSC because, for a focal foreign firm, a certain level of deterrence has already been established, and sufficient information about its rivals has already been collected.

Alongside these benefits, two latent mechanisms that increase the cost of entry into a given segment also operate. First, a focal foreign firm may face an increasing exposure to its rivals' retaliation as the number of its overlapping segments with its rivals increases. The retaliation can lead to substantial losses in the focal foreign firm's sphere of influence, that is, its major source of revenue (Jayachandran, Gimeno & Varadarajan 1999). Secondly, during the process of increasing its MSC level, a focal foreign firm's entry move into a given segment will induce its peers to enter the same segment. These modelling moves will increase the competition level in that segment and make the focal foreign firm worse off.

Since the expected benefits of entering a given segment for a focal foreign firm increase at a declining rate while the costs of doing so increase at an increasing rate, the net effect of MSC on segment entry probability is non-linear.

8.2 A positive relationship between segment entry probability and prior experience

My second main finding is that the more operating experience a focal foreign firm has in a given segment, the higher the probability that it will enter that segment again. This is consistent with the prediction of organisational learning theory, which suggests that marginal costs of doing a particular task will reduce when the task is conducted repeatedly (Levitt & March 1988). For example, Searle (1945) showed that the labour hours needed to manufacture a vessel during World War II decreased by 55 per cent as the cumulative number of outputs increased between 1941 and 1944. Rapping (1965) claimed that this improvement in productivity was due to the experience management and workers gained from the accumulated output over time.

Once a focal foreign firm enters a given segment, it will develop routines of operating in that segment. For example, automobile firms' operation in a product segment involves a full process that includes market research, product development, product design, supplies purchasing, manufacturing (stamping the metal sheet, casting, machining and assembling) and marketing and advertising (White 1971). Operating procedures in each of these tasks will be established and used repeatedly because the personnel of functional departments will know how to use them and there is an increasing return to experience (Nelson & Winter 1982). Over time, by providing familiarity and efficiency (cost reduction), routines will constrain a focal foreign firm's search area and reduce its likelihood of experimentation with alternative solutions. As Amburgey, Kelly and Barnett (1993) expressed it, 'As the folk version asserts, if you know how to use a hammer, everything looks like a nail.' In other words, routines will become 'independent engines', guiding a focal foreign firm to make repetitive entries into a given segment where it already has a presence (Burgelman cited in Amburgey & Miner 1992; Levitt & March 1988). Therefore, a focal foreign firm's probability of

entering a given segment will increase as its experience in that segment increases. However, it should be noted that the increase of entry likelihood follows a logarithmic curve. At a high level of segment experience, that is, when the focal foreign firm has established a certain level of routines, the marginal benefits, such as the cost reduction of entering a given segment, will become smaller than they are at a low level of segment experience. As a consequence, the focal foreign firm's likelihood of entering a given segment will rise at a decreasing rate as its operating experience increases in that segment.

It is interesting that both measures of prior experience are statistically significant and have positive signs. A longer time spent in a given segment will enable a focal foreign firm to develop and launch a new product line in the same segment with less monetary and labour input because, over time, it has learned how to perform the same type of task in a more efficient way. For example, in a study on airplane manufacturing, it was observed that the labour costs in producing each additional airframe decreased as the number of airframes produced increased (Asher 1956; Wright 1936). Noticeably, the time measure covers a comprehensive experience of both successful and unsuccessful trials. This means that even experiences of failure contribute to repetition of a strategic move. As Amburgey and Miner (1992) pointed out, actions related to unfavourable outcomes can also be repeated because decision-makers may interpret these negative events as being the result of insufficient implementation of their policy (Levitt & March 1988; Staw 1976;). The other measure I used is a firm's accumulated sales in a given segment. This measure captures the successful applications of routines, which lead to realisation of values created for customers. Specifically, sales is the finishing activity along a focal foreign firm's supply chain. To reach there, the focal foreign firm needs to complete a series of activities such as design, engineering, manufacturing and marketing. By completing an accumulated number of sales in a given segment, the focal

foreign firm can polish its skills and enhance efficiency in performing each of these activities. Hence, the more products a focal foreign firm has sold in a given segment, the higher the probability it will re-enter that segment.

The finding of a positive relationship between a focal foreign firm's prior experience in a given segment and its probability of re-entering that segment is also consistent with empirical findings (Amburgey & Miner 1992; Amburgey, Kelly & Barnett 1993; Greve 1996; Greve 2000; Gulati 1995). For instance, Amburgey and Miner (1992), using a random sample of 262 large mining and manufacturing firms from the Fortune 500 list between 1949 and 1977, showed that firms were more likely to repeat a certain type of merger as the number of prior mergers of the same type increased. My finding is also supported by anecdotal evidence in the auto industry. For example, Toyota has kept the car line Camry in the mid-sized sedan segment since its debut in the US market in 1983 (Maynard 2003); both Mercedes-Benz and BMW have focused on the luxury segment by launching new car lines or replacing existing car lines for decades (Grobart 2016).

8.3 The steepening effect of prior experience in the inverted U-shaped relationship between segment entry probability and multi-segment contact

Finally, as one of the first attempts to test the moderating role of a foreign firm's prior experience in a given segment in the linkage between multimarket contact and segment entry probability, my research found that the more experienced a focal foreign firm is in operating in a given segment, the stronger the non-linear relationship between its MSC level with rivals in that segment and its probability of entering into that segment. This finding is robust for both prior experience measures, namely, time since initial entry and sales.

At a low to moderate level of MSC, facing the same level of benefits associated with entry into a given segment, a more experienced foreign firm is more likely to make the entry than its less experienced counterpart. This is largely because the former can draw on its better-developed routines and perform the entry task with higher efficiency than the latter. This explains the steeper slope at the upward part of the inverted U-shaped curve.

At a moderate to high level of MSC, given the same level of potential loss of sales, a more experienced foreign firm has a higher motivation to avoid entry into a given segment than a less experienced foreign firm because the former's learning investments in the segment are larger than the latter. A focal foreign firm's learning investments, such as R&D efforts in developing a new product line, will become sunk costs once the market share distribution in a given segment is reversed, which may be caused by its rivals' countermoves. Hence, at a moderate to high level of MSC, prior experience in a given segment will speed up a focal foreign firm's forbearance process of segment entry.

Chapter 9: Conclusion

9.1 Theoretical contributions

In summary, this study makes three theoretical contributions. First, as one of the first studies to investigate the dynamic process of segment choices, it adds to international business scholars' knowledge of MNEs' post-entry dynamics of product scope in a host market. Second, by integrating the mutual forbearance perspective and the organisational learning perspective within one conceptual framework, it has contributed to the time frame discussion, that is, which drives MNEs' segment entry decision-making: the future reactions from rivals or their own past experience? Third, a close examination of MNEs' segment choices at the product market level balances the orientation in the foreign market entry literature, where the boundary of markets in the majority of works has been defined in geographical terms.

9.2 Theoretical implications

Several implications and future research avenues for each theory tested have emerged from the findings of this study.

9.2.1 Multipoint competition theory

First, this study adds value to the multipoint competition of taking a longitudinal perspective in analysing foreign firms' strategic interactions by focusing on a dynamic process of their segment entry choices. Notably, the interactions here are not confined to those among foreign firms themselves. Instead, foreign firms consider their segment overlap with domestic firms as well in their segment entry decisions. By using the term 'dynamic', I refer to an entry process that involves a sequence of decisions, namely, choosing the market to enter, choosing the entry mode and choosing the product segments to enter. The product segment entry process, in particular, is an iterated one where both re-entries into the same segment and de novo entries can occur.

Second, my study joins a limited number of empirical findings (Baum & Korn 1999; Fuentelsaz & Gómez 2006; Haveman & Nonnemaker 2000; Stephan et al. 2003) in support of Stephan and Boeker's (2001) theoretical argument that an inverted U-shaped relationship between multipoint contact and market entry exists. Most of these works (including this study) used a firm-in-market measure of multipoint contact whereas Baum and Korn's (1999) measure was at the dyad level. Dyad-level measurement is closest to the relational nature of multipoint contact between firms. However, from a statistical analysis perspective, the level of dependent variable decides the level of analysis. Hence, for this study, a firm-in-market measure was more appropriate (Gimeno & Jeong 2001) because entry is made by a focal foreign firm into a given segment.

Third, the focus on foreign firms' segment entry decisions in this study joins recent efforts in using firms' market entry or exit as a more direct proxy for rivalry (Anand, Mesquita & Vassolo 2009; Baum & Korn 1996, 1999; Fuentelsaz & Gómez 2006; Haveman & Nonnemaker 2000; Stephan et al. 2003). In contrast, early works on multimarket competition, following the tradition of industrial organisation economics, have used market average price (Alexander 1985; Evans & Kessides 1994; Jans & Rosenbaum 1997; Singal 1996), market average profit margin (Feinberg 1985; Hughes & Oughton 1993; Scott 1982) and market share stability (Heggestad & Rhoades 1978; Mester 1987) as proxies for intensity of rivalry among firms in a market. The shift in outcome of interest from market level to firm-market level suggests that economics theories such as multipoint competition theory can be used in strategic management research.

Finally, this study extends the boundary of multipoint competition theory by testing it in the automobile industry. The theory has been tested in the airline industry (Baum & Korn 1996, 1999; Evans & Kessides 1994; Gimeno 1999; Sandler 1988;

Singal 1996), banking industry (Alexander 1985; Fuentelsaz & Gómez 2006; Haveman & Nonnemaker 2000; Heggestad & Rhoades 1978 Mester 1987; Rhoades & Heggestad 1985;), insurance industry (Greve 2008; Li & Greenwood 2004), hospital industry (Boeker et al. 1997; Stephan et al. 2003) and telephone industry (Barnett 1993), but few studies have been investigated the automobile industry (except for Yu & Cannella 2007; Yu, Subramaniam & Cannella 2009).

However, my study differs from those of both Yu and Cannella (2007) and Yu, Subramaniam and Cannella (2009). First, in Yu and Cannella (2007) and Yu, Subramaniam and Cannella's (2009) papers, hypotheses were tested in multiple host countries. They investigated multipoint competition between foreign automakers at the geographical market level. In contrast, I constructed a foreign automaker's multipoint contact at the segment level within a host country. Second, Yu and Cannella's (2007) paper was concerned with the effect of multimarket contact on a foreign automaker's response speed to a rivalrous action, whereas my study examined a foreign automaker's probability of entering a product segment. Third, Yu, Subramaniam and Cannella's (2009) paper focused on the moderating roles of subsidiary ownership, local regulatory restrictions, cultural distance and presence of local competitors on the negative effect of multimarket contact on a multinational corporation subsidiary's competitive aggressiveness in a host country. However, in my study, the main effect of multipoint contact on foreign firms' segment entry likelihood and the contingent role of foreign firms' segment operating experience were given the same weight.

9.2.2 Organisational learning theory

First, my finding contributes to clarifying the source of momentum. Traditional organisational learning theory predicts that only routines that produce favourable performance will be used repeatedly (Levitt & March 1988). Interestingly, results show that both comprehensive experience (time) and successful experience (accumulated

sales) facilitate foreign firms' segment re-entry moves. This finding suggests that momentum stems from the competency of performing a routinised task such as developing product lines belonging to the same segment even if this is a suboptimal choice.

Further, using time, that is, the accumulated number of years a focal foreign firm has stayed in a segment, as a prior experience measure, my study also extends the measurement of experience in the strategic momentum literature because the accumulated number of prior strategic choices has been the dominant proxy (e.g., the number of prior mergers of a given type in Amburgey & Miner 1992).

Third, this study broadens the generalisability of organisational learning theory, specifically, the notion of strategic momentum. The positive effect of prior experience in firms' decision-making has been supported in a few empirical contexts such as banks' branch location decisions (Greve 2000), telephone companies' decisions to escalate commitments to the wireless communication business (Noda & Bower 1996), mining and manufacturing firms' choice of merger type (Amburgey & Miner 1992), newspaper's content and frequency change decisions (Amburgey, Kelly & Barnett 1993) and electronic manufacturing firms' line of business entry decisions (Chang 1995). This study extends the boundary of the theory by testing it in the automobile industry. Moreover, most works in the strategic momentum literature (except for Chang 1995) were conducted in domestic settings. Hence, this study is also among the first to find support for strategic momentum for foreign firms in a host country.

Finally, this study, by using an organisational learning perspective to explain the dynamics of foreign firms' segment choices, complements the experiential learning view of the Uppsala model (Johanson & Vahlne 1977). In the Uppsala model, foreign firms tend to increase their resource commitment, for example, by opening a manufacturing plant in addition to a sales subsidiary in a host country, as they acquire

local knowledge. This notion has been supported by anecdotal evidence. For example, Honda Motor opened its wholly owned sales subsidiary in the US (American Honda) in 1959. Its annual sales increased to 40,000 units by the end of 1962, and a large dealership network was established by then. However, the company, based on its experience in the market, found that one important obstacle in achieving a sales target of 200,000 units in 1963 was the poor image of motorcyclists among American consumers. Therefore, American Honda began to change consumers' mindset, for example, by running advertising campaigns such as 'You Meet the Nicest People on a Honda'. In 1979, 20 years after the open of its local sales office, Honda Motor began local production of motorcycles in US (Honda Worldwide Home 2017).

Although both Johanson and Vahlne's (1977) study and this study found that experience is stored and retrieved through routines, the two studies differ in the type of experience that is learned. The experience in the Uppsala model is market-level knowledge such as local culture, for example, consumer perception of a particular product in a host country. In contrast, experience in this study refers to operating expertise in a specific product segment. For example, the production methods are different for CUVs and SUVs. A uni-body construction is used for CUVs, that is, the chassis and vehicle body are a single and integrated part carved out of the same panel sheet of steel. In contrast, in an SUV, the chassis and vehicle body are produced separately and then the latter is placed on top of the former. Moreover, design techniques can also differ across segments because different types of vehicles require different aesthetic and styling features.

9.2.3 Theory integration

This study complements Greve's (2000) efforts to integrate theories with different time orientations within one conceptual framework. My study tested two theories with opposing time frames, namely, future benefit-oriented mutual forbearance

theory and past experience-guided organisational learning theory, whereas Greve (2000), in a study of new branch location decisions by Tokyo banks, added a third dimension by testing density dependence theory and institutional theory to capture contemporary opportunities, in addition to testing organisational learning theory and mutual forbearance theory. Interestingly, the same findings emerged from the two studies in testing organisational learning theory, where a positive effect of experiential learning on current entry decision was found, but the findings differed in testing mutual forbearance theory. Specifically, I found an inverted U-shaped relationship between a foreign automaker's multipoint contact with rivals in a given segment and its probability of entering that segment. In contrast, Greve (2000) found a positive relationship between the number of a Tokyo bank's single-point competitors in an area and its probability of locating a new branch in that area while the relationship between the number of a Tokyo bank's multipoint competitors in an area and its probability of entering that area was statistically insignificant.

This difference led to the two studies reaching different conclusions. I concluded that both experiential learning from a foreign firm's own experience and guessing the potential benefits and costs from future interactive relationships with rivals are important factors in its segment entry decision. However, Greve (2000) concluded that mutual forbearance was less a concern than experiential learning in a bank's decision-making on the location of a branch. I believe that more future research is needed to test theories which emphasise different time orientations simultaneously in studying firms' strategic choices. As Yu and Cannella (2013) argued, it is time to integrate multimarket competition theory and organisational learning theory.

Notably, one possible explanation for the different conclusions drawn from Greve's (2000) paper and my study is that our treatments of multipoint contact are different. Greve (2000) argued that banks locate a new branch in an area to establish

multipoint contacts proactively, for example, by turning single-point competitors into multipoint competitors or extending the number of contact points with existing multipoint competitors (which was not supported given the insignificant result). In other words, there is an intention to weaken rivalry. In contrast, I have not explicitly pointed out that increasing contact points, and hence achieving mutual forbearance, is an MNE's deliberate rivalry-dampening strategy.

Indeed, there has been no consensus among scholars on the antecedents of multipoint contact so far. Among the few attempts to explore this issue empirically, the results are inconclusive. Knickerbocker (1973) observed that oligopolists modelled their competitors to maintain multimarket contact level with these competitors (Yu & Cannella 2013). In contrast, Baum and Korn (1999) found that multimarket contact among California commuter airlines arose more as a consequence of chance encounters under uncoordinated strategies than as a consequence of intentional attempts to benefit from mutual forbearance. Hence, I believe future research will benefit from further explorations into the underlying causes of a firm's multipoint contact with its rivals by providing answers to the question: Is the formation of multipoint contact a result of firms' purposeful strategy or simply a result of chance?

However, regardless of whether a proactive strategy to formulate multipoint contact exists or not, one implicit assumption for mutual forbearance to hold is intrafirm coordination (Golden & Ma 2003; Jayachandran, Gimeno & Varadarajan 1999). Surprisingly, it has received little attention in empirical works so far. This is a critical gap to be filled. For one thing, multimarket competition will transform into market-by-market competition without the presence of such intrafirm coordination (Jayachandran, Gimeno & Varadarajan 1999). In addition, multiunit-multimarket corporations have emerged as a dominant corporate form. The National Longitudinal Survey of Youth reported that 60 per cent of the US working population were employed by multiunit-

multimarket corporations in 1994 (Baum & Greve 2001). Hence, there is a growing need to understand the coordination across units managing different geographical/product markets in the implementation of corporate strategy. Jayachandran, Gimeno and Varadarajan (1999) proposed that the rivalry-reducing effect of multimarket contact will be stronger when firms have organisational structures that facilitate coordination across their own market units. The question is, which type of organisational structure does a better job in such coordination: a centralised, decentralised, or in Sengul and Gimeno's (2013) terminology, a 'constraint delegation' that lies in between?

Given the importance of cross-unit coordination, caution is advisable in generalising the finding of the non-linear relationship between a foreign firm's MSC with rivals in a given segment and its probability of entering that segment in this study to other industry settings. According to Haveman and Nonnemaker (2000), such coordination is easier to achieve in industries in which the product attributes across markets are closely related because sharing of production technologies, key supplies and distribution channels makes coordination and communication more frequent and smooth. The automobile industry falls well within this category since resource-sharing among divisions in an automobile firm is common. For example, the Lexus ES 250 actually had the same platform as the Toyota Camry (Maynard 2003). Hence, it is important for future research to test the mutual forbearance perspective and its contingency in other industry settings.

Finally, a combination of the mutual forbearance perspective and the organisational learning perspective with past and future orientation respectively is particularly suitable in analysing foreign firms' segment choices dynamics in a host country. As mentioned earlier, foreign firms tend to exhibit a dynamic path where decisions made at time of entry into the host country are very likely to be different from

those made at later stages of internationalisation. Hence, this study fills a gap in the literature, where foreign firms' post-entry operation, particularly their segment choice dynamics, has been given rather limited attention. Further, support for both perspectives in this study also indicates that strategic management theories can be applied in explaining strategic choices such as segment entry in the international business context.

Appendix A: Firms and Segments

Table A.1. Firms in the 1987–2015 Sample

Company name	Home country
BMW	Germany
British Aerospace	United Kingdom
British Leyland/Rover	United Kingdom
British Leyland/Rover group	United Kingdom
Chrysler	United States
Daihatsu	Japan
Daimler	Germany
Daimler Chrysler	United States
Fiat	Italy
Fiat Chrysler	United States
Ford	United States
Fuji	Japan
Geely	China
General Motors	United States
Honda	Japan
Hyundai	South Korea
Isuzu	Japan
Jaguar	United Kingdom

Company name	Home country
Kia Motors	South Korea
Mazda	Japan
Mitsubishi	Japan
Nissan	Japan
Peugeot Citroën	France
Porsche	Germany
Renault	France
Saab	Sweden
Spyker	Dutch
Suzuki	Japan
Tata Motors	India
Tesla Motors	United States
Toyota	Japan
Volkswagen	Germany
Volvo	Sweden
Zastava	Serbia

Source: WardsAuto (1987–2015)

Table A.2. Segments in the 1987–2015 Sample

Segment	Line example
Large CUV	Chrysler Pacifica, Mazda CX-9
Large Luxury CUV	Cadillac SRX, Audi Q7

Large Luxury SUV	Infiniti QX56, Cadillac Escalade
Large Pickup	Ford F Series, Toyota Tundra
Large Regular	Dodge Charger, Kia Amanti
Large SUV	Chevrolet Blazer, Nissan Armada
Large Specialty	Mercury Cougar, Ford Thunderbird
Large Van	Ford Club Wagon, Nissan NV
Lower Luxury	Acura Vigor, Volvo 200
Lower Middle	Honda Accord, Volkswagen Passat
Lower Small	Hyundai Elantra, Volkswagen Golf
Luxury Specialty	Audi A5, Subaru SVX
Luxury Sport	BMW Z3, Porsche Cayman
Luxury Van	Volkswagen Eurovan, Oldsmobile Silhouette
Middle CUV	Pontiac Torrent, Subaru Outback
Middle Luxury	BMW 5 Series, Acura RL
Middle Luxury CUV	Lexus RX300, Tesla Model X
Middle Luxury SUV	Saab 9-7X, Mercedes G Class
Middle SUV	Ford Explorer, Mitsubishi Montero Panel
Middle Specialty	Ford Mustang, Mazda RX-7
Small CUV	Jeep Compass, Hyundai Tucson
Small Luxury CUV	Mercedes GLK, BMW X1
Small Pickup	Chevrolet Colorado, Isuzu Pickup

Small SUV	Daihatsu Rocky, Kia Sorento
Small Specialty	Dodge Daytona, BMW Mini Cooper
Small Van	Ford Freestar, Honda Odyssey
Upper Luxury	Cadillac Seville, Audi A8
Upper Middle	Chrysler New Yorker, Acura Integra
Upper Small	Ford Focus, Toyota Tercel

Source: WardsAuto (1987–2015)

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