FAILURE-INDUCED INTERORGANIZATIONAL LEARNING: ENTRY AND SURVIVAL ANALYSIS OF JAPANESE FIRMS IN CHINA, 1980-2000

By

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A Thesis Submitted to
The Hong Kong University of Science and Technology
in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy
in Department of Management of Organizations

30 June 2006, Hong Kong

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30 June 2006

ACKNOWLEDGEMENTS

I would like to thank all those who taught, supported and mentored me during my graduate studies at HKUST. It is not possible to accomplish this dissertation without the help and support of many people.

My most heartfelt thanks go to my family – including my parents, Weixiao YANG and Jinfang LI; my husband, Jun XU; and my parents in law, Haoran XU and Fengyin QIAN. Their love and sacrifice made it possible for me to pursue my studies. Time and time again they put my needs and the demands of my program ahead of their own. Their patience, encouragement, and unconditional support empowered and inspired me to attain this degree.

I am deeply grateful to my thesis supervisor, Professor Jiatao LI, who generously and patiently spent hours talking through research ideas and problems with me, despite an incredibly full schedule, and inspired me with his keen insights and many years of scholarly experience. His constant support in providing invaluable comments, rigorous logic, and intellectual challenge to push my thinking further during our research meetings will always remain with me.

My special gratitude goes to Professor Andrew DELIOS. Professor DELIOS inspired me to pursue this research topic, gave particularly useful comments in the early conceptualization of this thesis, and has consistently been a strong supporter of the research ideas. Also, I greatly benefited from his insightful and stimulating research ideas as well as enthusiasm to explore new fields and methods.

I would like to express my sincere thanks to Professor Larry J.L. FARH, Anne S Y TSUI, Heli WANG, and Xueguang ZHOU for their intellectual and emotional support at

various points during my graduate studies and also for their advice and assistance during my job search process.

I am also grateful to other faculty members at our department for their significant assistance and inspiration. They are Professor Kenneth S K LAW, Jaepil CHOI, Yaping GONG, Tai-yong KIM, John F HULPKE, Billian Ni SULLIVAN, Riki TAKEUCHI, and Ellick WONG. I am also grateful to several visiting professors at our department, Professor Henrich GREVE, Olav SORENSON, and Anand SWAMINATHAN, for their extremely constructive criticisms and supportive feedbacks on my early conceptualization of the thesis, despite only brief acquaintance with me and my work.

My thanks also go to the staff in the Department of Management of Organizations (MGTO) at HKUST. Among them, I would like to especially thank Margaret M L CHANG, Karina K Y YICK, Merita Y L CHIU, Dena F K CHAN, Cubie L L LAW, and Michelle L F TO, for their patient and superb assistance in facilitating my course studies, research and teaching activities as a Ph.D. student.

I was very lucky to develop a number of friendships with fellow students inside and outside the MGTO department over the last six years in Hong Kong. They are Shantanu BANERJEE, Song CHANG, Lin CEN, Zhihong CHEN, Xiaoying DONG, Jingchuan HOU, Xiaoyang HOU, Guohua (Emily) HUANG, Yuan HUANG, Ming GONG, Honglei LI, Jian LIANG, Tongshi LU, He XU, Jin (Jessi) XU, Xin XU, Jiangbo XUE, Jiwen (Lynda) SONG, Kun (Fiona) YAO, Rui (Deborah) YUE, Jie ZHANG, Tianyu ZHANG, Xiaohong (Teresa) ZHENG, and Haigong (Tom) ZHOU. Without your friendship and company, I would not have been able to go through the difficult process of doctoral studies. All of you made my stay in Hong Kong an enjoyable and memorable time.

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Abstract

This thesis advances a failure-induced interorganizational learning framework to explain foreign entry strategy as well as to predict foreign investment survival in a host country. The framework investigates two causal models: 1) how failures of early foreign direct investments (FDI) in a host market affect subsequent foreign entries in that market; and 2) in turn after controlling for their entry probabilities, how the survival prospects of these foreign entries are influenced by the same source of FDI failures. The thesis further introduces a set of contingency factors, depicting the nature of pivotal learning components which include sender organizations, receiver organizations, and the relationship between them, as moderators in the two baseline causal models. The three contingency factors emphasized here are the ambiguity of FDI failures, the firm-level host-country experience, and the joint ownership between potential foreign investors and early FDI investors in the host market. I address these issues in two separate studies and draw on the empirical context of Japanese MNCs' foreign investments in manufacturing industries in China in the 1980-2000 period.

Study one examines the first causal model and found that a firm was less likely to enter a foreign market when observing a large number of failures by peer firms in the host market. This negative effect became stronger when the failure experience was at a

lower level of ambiguity, or as the firm had direct experience in the host country, or as joint ownership existed between the firm and early FDI investors in the host market.

Study two investigates the second causal model and found that later foreign entries enjoyed a reduced risk of failure by benefiting from the experience spillovers of FDI failures that had occurred before their entries. This main effect became stronger when the observed failure experience was at a lower level of ambiguity, or as the parent firm had joint ownership ties with early FDI investors in the host market. In addition, this study controls for foreign firms' entry probabilities exported from the first study as an indicator for foreign firms' self-selection process. Results illustrate that this self-selection indicator had an expected positive effect on FDI survival.

CHAPTER 1
INTRODUCTION

1.1 Research Objectives

Organizational research has long recognized that firms adapt by observing and imitating others' strategies and practices (Argote, 1999; Cyert & March, 1992; Greve, 1996; Haunschild & Miner, 1997; Levitt & March, 1988; Miner & Haunschild, 1995). This process is founded on the idea that that firms gain information from others' experiences and revise their own activities based on these information cues (Chuang & Baum, 2003; Miner, Kim, Holzinger, & Haunschild, 1999; Shaver & Flyer, 2000). Learning from others' experience, whether it is intentional or unintentional (March & Olsen, 1975; Huber, 1991), has been shown to have important effects on various organizational outcomes, such as increased manufacturing plant productivity (Argote, Beckman, & Epple, 1990), reduced cost of production (Darr, Argote, & Epple, 1995), and enhanced survival rates (Baum & Ingram, 1998; Kim & Miner, 2000; Ingram & Baum, 1997).

Extant research in this line (except several recent studies) has largely focused on apparently successful organizations as the source of learning (Burns & Wholley, 1993; Conell & Cohn, 1995). Our knowledge about the role of learning from other firms' failures is limited. It has been criticized that previous interorganizational learning studies have a strong "success" bias which might lead to our incomplete views about firms' learning processes and outcomes (Denrell, 2003; Levinthal & March, 1993; Miner et al., 1999). Other informative and important learning sources,

such as failure, might provide very different cues for a firm's learning. For instance, it has been suggested that a firm's learning from success and failure could be asymmetrical (Haunschild & Miner, 1997; Miner et al., 1999). Therefore, studies to examine the effect of others' failures on a firm's decision making and its subsequent performance outcomes could help counteract the general tendency to study success, and highlight the different learning logics and additional benefits of learning from failure (Miner et al., 1999).

The primary objective of this thesis is to develop and test theory regarding this underemphasized source of learning: failure of other firms. Organizational failure has been treated by the extant literature as an important organizational outcome (Aldrich, 1979; Barnard, 1947; Baum & Ingram, 1998; Hannan & Freeman, 1977, 1989). Causal models predicted failure and how to avoid it, yet these models were rarely developed to examine how failure affects subsequent learning by peer firms regarding their strategic actions and performance outcomes (Kim & Miner, 2000; Miner et al., 1999). Scholars have called upon more research considering prior failure as an independent variable and modeling its effect on organizational strategy processes as well as the performance consequences (Haunschild & Miner, 1997; Miner et al., 1999). In response to this call, this thesis addresses these issues by examining the effects of early foreign direct investment (FDI) failures in a host market on a foreign firm's entry decision in that market, and also the survival rates of the firm's foreign entries.

In addition, organization research has repeatedly asserted that interorganizational learning is complex and difficult. Since experience generated by other organizations may be ambiguous and difficult to interpret (Cohen & Levinthal, 1990; Szulanski, 1996), organizations are difficult to change (Hannan & Freeman, 1977, 1984), and the uncertain

market environment in which organizations compete may already change even if organizations have tried to adopt (Levitt & March 1988; Levinthal & March, 1993). For instance, interorganizational learning with respect to imitating others' organizational strategies and practice has been shown to be localized on the basis of firm size, physical location, cognitive identity and social networks, and that uncertainty plays important roles in the learning processes (Bourgeois & Eisenhardt, 1988; Greve, 1996, 2000; Haunschild & Miner, 1997; Lee & Pennings, 2002). Similarly, the potential benefit of interorganizational learning in terms of improving organizational outcomes should not be taken for granted, and has found to be contingent on certain conditions, such as the timing and relatedness of others' experience, and the learning organizations' internal inertia or absorptive capacities (Baum & Ingram, 1998; Cohen & Levinthal, 1990; Darr & Kurtzburg, 2000; Greve, 1999; Hannan & Freeman, 1977, 1984). These studies contribute to our understandings about the contexts and/or conditions that may affect interorganizational learning processes and outcomes. Nevertheless, the theories pertaining to the contingency effects of these contexts/conditions on learning processes and outcomes are fragmented (Huber, 1991; Ingram, 2002; Schulz, 2002). Research is warranted to develop a conceptual framework to synthesize these fragmented findings, and more importantly to reflect the processes and outcomes of interorganizational learning based on different type of experience sources, including failure experience.

To develop such a framework, the second objective of the thesis is to systematically identify conditions that affect the interorganizational learning based on others' failure experience, and then provide integrative theories to explain their effects on both learning processes and outcomes. It has been suggested that the abstract interorganizational learning phenomenon can be broken down to pivotal components, and

the keys to understand the complex phenomenon of interorganizational learning are to understand how the nature of the three pivotal components, including "sender" organizations, "receiver" organizations, and the relationship between them, affect learning (Ingram, 2002). The thesis adopts this conceptualization and explores the contingency effects of pivotal learning components on the implications of failure-induced interorganizational learning on a firm's strategic actions and the subsequent outcomes of the adopted actions.

1.2 Research Context and Questions

Foreign direct investments represent a form of organizational growth by establishing a new subsidiary for the purpose of manufacturing or providing services in a foreign country. Owing to a firm's limited knowledge in production and marketing capabilities in a new country, foreign expansion is an important strategic decision that entails substantive resource constraints and informational challenges (Martin, Swaminathan, & Mitchell, 1998). Prior research has emphasized how industry characteristics and national advantages can attract foreign investments and how the foreign investors enjoy these advantages (Buckley & Casson, 1976; Dunning, 1980, 1988; Hennart, 1982; Rugman, 1979, 1981). In addition, a firm's internal resources and capabilities may spur foreign investment activities, and these superior resources and capabilities of the firm will generate competitive advantages and earn greater profits for the firm (Barney, 1991; Chang, 1995, 1996; Prahalad and Hamel, 1990; Wernerfelt, 1984).

Taking a different track in this thesis, I embrace an interorganizational learning perspective to investigate FDI phenomena, which has been empirically shown as a valid

approach (Bastos & Greve, 2003; Guillén, 2002, 2003; Henisz & Delios, 2001; Yiu & Makino, 2001). Prior research in international management literature has demonstrated that a multinational company (MNC) not only learns from its own previous experience (Barkema, Bell, & Pennings, 1996; Delios & Henisz, 2000; Johanson & Vahlne, 1977), but is also subject to the experience generated by other foreign entrants. The experience of other organizations may not only provide information cues for a foreign firm to decide their own foreign entry strategies and practices (Guillén, 2002; Henisz & Delios, 2001), but also have important effects on key organizational outcomes, such as survival (Mitchell, Shaver, & Yeung, 1994; Shaver, Mitchell, & Yeung, 1997).

These studies, however, mainly focused on MNCs' learning from the successful experience of other MNCs, leading to a limited understanding of how a MNC learns from others' FDI failure experience. For instance, these studies did not provide systematic explanations about why a certain type of FDI experience is influential and beneficial to a foreign firm than other types of experience, or why there is a sequence among foreign firms in attending to and reacting to the same experience, or why they cannot be equally benefit from the same experience spillovers.

Bearing in mind the limitations of interorganizational learning literature and the unsatisfactory applications of interorganizational learning perspective in the FDI context, I raise the following two research questions:

1. *How are the foreign entry decisions and the survival chances of the foreign entries influenced by the failure experience generated by other FDIs in the host market?*

2. *What are the contingency factors that affect the relationship between the failure experience generated by other FDIs and the subsequent foreign entries decisions as well as the survival chances of these subsequent entries?*

I explore above research questions in the empirical setting of Japanese MNCs' foreign investments in the manufacturing sector in China in the 1980-2000 period. Several reasons make China an excellent setting for investigating above questions. First, China is one of the most important manufacturing locations in the world, and Japan is one of the largest investors in China (UNCTAD, 2001). My data cover Japanese firms' foreign direct investment from the beginning of China's economic transition, making accurate measurement of prior FDI failure experience possible. Second, China's institutional context during the study period is widely considered to be complex and highly uncertain (Child, 1994). In the face of high uncertainty, learning from others' experience becomes important since it helps to economize on search costs (Cyert & March, 1963; Guillén, 2002; Scott, 2002). Third, FDI in China on an experimental basis in different industries provides ample variances for exploring interorganizational learning heterogeneities owing to different levels of industry dynamism. Finally, using Japanese foreign investments in China allows us to compare our findings with existing studies (Guillén, 2002; Henisz & Delios, 2001), and extends our knowledge on interorganizational learning in an international context.

1.3 Organization of the Thesis

There are six chapters in this thesis. Chapter 1 is the general introduction of these

objectives, context, and research questions.

Chapter 2 reviews relevant literatures on interorganizational learning, foreign market entry, and FDI performance. I first provide basic definition of organizational learning, highlight internal and external learning sources, and briefly summarize the findings about the effects of interorganizational learning on organizational strategic actions and outcomes. Then, I briefly review conventional perspectives of foreign market entry and the performance implications of foreign entry strategies. Moreover, I narrow the focus on a recent stream of research that examines foreign entry decisions and FDI performance from an interorganizational learning perspective. Lastly, I provide a critique of the prior literature and identify the research opportunities for future research.

In Chapter 3, I develop a failure-induced interorganizational learning framework to systematically investigate the research questions raised in this thesis. I first conceptualize that FDI failure is a salient negative outcome of prior entrants in the host country, and serves as an important source of learning. I argue that this learning source will not only affect a potential investor's foreign entry decisions in the host market, but also influence the outcomes (e.g. survival chances) of the investor's later FDIs in that market. Moreover, I argue that effects of prior FDI failures on foreign entry decisions and FDI survival are not universal, and are contingent on certain conditions. Ingram (2002) highlights the importance of pivotal learning components in understanding abstract interorganizational learning phenomena, including sender organizations, receiver organizations, and the relationship between them. Drawing from this line of thinking, I identify contingency factors based on the nature of pivotal learning components, and further explore their moderating effects on the implication of prior FDI failures on later foreign entry decisions and FDI survival. Based on the conceptual framework, I raise a

specific set of research questions and empirically examine them in two separate studies in chapters four and five.

Chapter 4 (study one) examines the main effect of prior FDI failures in the host market on a foreign investor's entry decision in that market. I also explore how the nature of key components in interorganizational learning, especially the causal ambiguity of early FDI failures (sender organizations), the potential foreign investor's host-country experience (receiver organizations), and the network relationships between the foreign investor and early FDI investors in the host market (relationships between sender and receiver organizations), affect the main effect. This chapter aims to advance a causal model that relates the failure-induced interorganizational learning to a firm's foreign market entry strategy.

Chapter 5 (study two) investigates how a later foreign entry enjoys a reduced risk of failure by benefiting from the experience of early FDI failures in the host market that had occurred before the foreign entry. I examine how the same set of contingency factors discussed in Chapter 4 affect the main effect of early FDI failures on a later foreign entrant's survival. This chapter advances a failure-induced interorganizational learning model to predict an important organizational outcome – survival.

Chapter 6 summarizes and integrates the main findings in previous chapters. It then discusses the contributions and limitations of this thesis and highlights several promising avenues for future research.

CHAPTER 2
LITERATURE REVIEW

This chapter reviews relevant literatures on interorganizational learning, foreign market entry, and their outcome implications. The first section of this chapter provides definitions of organizational learning, highlights learning sources, and briefly summarizes the literature on the effects of interorganizational learning on organizational strategic actions and potential organization outcomes. I then present a critique of this literature. The second section reviews conventional perspectives of foreign market entry and the outcome implications of foreign entry. I aim to provide a general picture of the conventional international management studies. The third section reviews a recent stream of research on foreign market entry decisions and FDI outcomes from an interorganizational learning perspective. I then provide a critique of this literature and identify opportunities for future research.

2.1 Interorganizational Learning

Organizational learning has been defined in various ways. One of the most accepted definition views organizational learning as routine-based, history-dependent, and target oriented (Levitt & March, 1988). It can add to, transform, and enlarge organizational knowledge stock (Huber, 1991; Levitt & March, 1988; Schulz, 2002). Learning theories attempt to understand the processes leading to changes in organizational knowledge structures and potential behavior patterns as well as their

implications for organizational outcomes, such as efficiency, productivity, and survival (Argote, 1999; Huber, 1991; Levitt & March, 1988; Miner & Mezias, 1996; Yelle, 1979).

Two primary sources of learning have been considered in the literature, including a firm's own experience (March & Olsen, 1976; Huber, 1991), and the experiences of other firms (Iwai, 1984; Cohen & Levinthal, 1989). According to Schulz (2002: 431), experiential learning from own experience depends critically on intraorganizational processes that generate experiences, such as experimentation (Brown et al., 1997; Huber, 1991; Levitt & March, 1988), small loses (Sitkin, 1992), increases in the problem supply (Schulz, 1998), and investment in search activities (Levinthal & March, 1981; Mezias & Glynn, 1993). Since learning purely based on self directed experience is insufficient and can be very costly, managers turn to the actions and experiences of others for clues and solutions. Learning from experience of others usually involves less cost, but may tend to produce less unique outcomes (Schulz, 2002). Such learning mainly depends on the mechanisms that give access to, or generate exposure to the experiences of others, such as networks, institutional mechanisms, and alliances or mergers and acquisitions (Hansen, 1999; Levitt & March, 1988). The two learning sources either provide impetuses for inferential learning, such as launching experimentations or initiating search for new solutions (Greve, 1998; Lant & Mezias, 1992; Sitkin, 1992; Zhou 1993); or provide raw materials from which organizations draw inferences, such as legitimate practices, and ideas or strategies that are perceived as beneficial (Haunschild & Miner, 1997; Levitt & March, 1988; Miner & Haunschild, 1995). Given the research questions raised in the beginning of the thesis, I am more interested in the second source of learning – experience of others. I thus focus our review on literature that is relevant to interorganizational leaning.

Much of the previous research in the area of interorganizational learning either focuses on learning as a process or as an outcome. Some scholars studied interorganizational learning as a process to acquire and transfer knowledge or to imitate new technology and organizational practices. Such learning often induces organizational strategic changes, yet is not necessarily tied to a better outcome (Baum & Ingram, 1997; Huber, 1991; Levitt & March, 1988; Miner et al., 1999). Nevertheless, some other scholars have studied interorganizational learning as an outcome one that can be seen in the improvement of organizational efficiency or performance (Baum & Ingram, 1998; Darr et al., 1995; Ingram & Baum, 1997; Kim & Miner, 2000). The details of these two streams of research are discussed in the following sections.

2.1.1 Interorganizational Imitation and Organizational Strategic Action

Many previous organization studies have emphasized processes through which individual organizations are likely to be influenced by the observed actions of others (Pfeffer & Salancik, 1978; DiMaggio & Powell, 1983). One such process is interorganizational imitation, which occurs when one or more organizations' use of a strategy increases the likelihood of that strategy being imitated and adopted by other organizations.

Predictions of this kind of learning-induced strategy adoption are made from multiple theoretical perspectives. Institutional theory holds that organizations imitate each others' strategy and practices that are considered to be legitimate and prevalent, and emphasizes that such a process is particularly ubiquitous under the condition of uncertainty (DiMaggio & Powell, 1983; Fligstein, 1991; Meyer & Rowan, 1977; Zucker, 1977). Organizational ecologists also predict mimetic adoption of organizational

strategies. Mimetic behaviors are seen as the underlying cause for the adoption of new strategy practices which will be spurred by the number of adoptions in existing organizations, due to the legitimation of the practice (Hannan & Freeman, 1987). For learning theorists, interorganizatinal learning is a counterpart learning mechanism of intraorganizational learning (Huber, 1991; Levitt & March, 1988). Learning theorists emphasized that intraorganizational learning can be insufficient and costly, and too much exploitation of self experience may lead organizations into competency traps (Levitt & March, 1988). In contrast, mimicry of new routines and experience generated by the explorations and advances of other organizations may involve a relatively lower cost, and is perceived as one of the best organizational strategies (Levinthal & March, 1993). In spite of the different emphases, these theoretical perspectives on interorganizational imitation seem to agree on the premise that as long as there are certain reasons that lead decision makers to believe that other organizations have better information, it may be reasonable to follow what those others do (Campbell, 1965; Haunschild & Miner, 1997; Levitt & March, 1988; Miner & Hanuschild, 1995).

Previous literature has suggested that interorgaizational imitation may unfold through different manners. Haunschild & Miner (1997) summarized three modes of mimetic learning, frequency-, trait-, and outcome-based learning. The first two modes emphasize the impact of social considerations and the third one emphasizes the impact of technical factors. Empirical evidence was founded to support the three modes of imitation, especially trait-based imitation. Trait-based imitation is founded on the idea that individual organizations do not attend to other organizations equally, yet are more likely to imitate organizations that possess certain traits, such as being observable, cognitively similar, geographically proximate, or in high status (Burns & Wholey, 1993; Haunschild

& Miner, 1997; Haveman, 1993; Podolny & Stuart, 1995). Besides paying attention to the sender organizations that generate experiences, some theorists have begun to notice the importance of the characteristics of learning (receiver) organizations in imitation. For instance, a learning organization's structural inertia and capacities have been found to make them unequally susceptible to a given source of experience (Barkema & Vermuelen, 1998; Greve, 1996).

Instead of imitation based on observation, another mechanism emphasized in the literature is contact learning (Marsden & Friedkin, 1993; Miner & Haunschild, 1995). Close ties between firms could lead to strong legitimization of practices (DiMaggio and Powell, 1983) and facilitate the transfer of information to tied firms about new opportunities for investment and growth (Beckman & Haunschild, 2002). This contact-based mimetic behavior has been shown in populations of corporate boards contemplating adopting the M-form of governance (Fligstein, 1985; Palmer, Jennings, and Zhou, 1993), poison pills and golden parachutes (Davis, 1991; Davis & Greve, 1997), takeover defenses and acquisitions (Haunschild, 1993, 1994); and banks' adoption of new technologies (Pennings & Harianto, 1992). Other examples come from hospitals considering a matrix organizational structure (Burns & Wholey, 1993), corporations adopting total-quality-management practices (Westphal, Gulati, & Shortell, 1997), and innovation in biotechnology firms (Powell, Koput, & Smith-Doerr, 1996).

2.1.2 Interorganizational Learning and Organizational Outcomes

Is learning from others' experience valuable? An elementary notion of learning focuses on the improvement of organizational outcomes such as performance or success. Organizations try to adapt to their environment by revising behaviors that result in

favorable outcomes and correcting behaviors that result in unfavorable outcomes (Lave & March, 1975). The management literature emphasizes the promise of organizational learning and strong beliefs that efficacious learning should ultimately be reflected in a positive organizational outcome (Stata, 1989; Senge, 1990; Garvin, 1993; Probst & Buchel, 1997; Fulmer, Gibbs, & Keys, 1998). In contrast, the academic literature on interorganizational learning is less confident about its benefits, since learning across organizational boundaries is difficult (Levitt & March, 1988; Levinthal & March, 1993; Szulanski, 1996; Weick, 1991). For instance, the experience of others may be tacit and difficult to gauge the true value. Assuming an organization is able to understand others' experience, it may still encounter difficulty in changing owing to inertia forces and different types of learning traps (Ahuja & Lampert, 2001; Huber, 1991). On top of that, the market environment where the organization competes may change even if the organization is able to learn.

Empirical studies in the literature provide support for the idea that learning from others' experience can be beneficial. For instance, Zimmerman (1982) found that construction companies benefited from interorganizational learning in the construction of nuclear power plants. Henderson and Cockburn (1996) illustrated that an organization's research productivity was enhanced owing to the spillovers from other organizations in the industry. More evidence of beneficial interorganizational learning was found in the worldwide semiconductor industry (Irwin and Klenow, 1994), in the banking industry (Kim & Miner, 2000), and U.S. hotel chains (Baum & Ingram, 1998; Ingram & Baum, 1997).

Other studies have given explicit attention to exploring the possibilities that experience released by other organization may differ in its value to a focal organization

depending on when it is generated, such as before versus after founding, and which other organizations generate it, such as near versus distant neighbors. Two studies on U.S. hotel chains highlighted that other chains' experience before a focal chain's founding, what could be called congenital experience, was particular valuable and would lower a focal chain's failure rate (Baum & Ingram, 1998; Ingram & Baum, 1997). In another study, Argote et al. (1990) showed that interorganizational learning lowered production costs more at the time that shipyards initiated production than after production was ongoing.

These findings imply that an organization may benefit most from others' experience at its conception stage because at this stage, the organization's own routines have not taken hold. Moreover, the two studies on U.S. hotel chains demonstrated that local experience was helpful in reducing the failure risk while nonlocal experience was not (Baum & Ingram, 1998; Ingram & Baum, 1997). This corroborates the finding of Greve (1999)'s study which showed that the greater experience of a branch system's units outside a given geographic market, the lower the performance in each branch in a focal market. These results suggest that the distance between organizations – whether in terms of space or other dimensions – has an important impact on the relationship between interorganizational learning and organizational outcomes.

In addition to the effects of different types of experience released by other organizations on learning, characteristics of a learning organization *per se* may also have important impacts on the effectiveness of interorganizational learning. Several empirical studies have found that a learning organization's structural inertia moderates the effects of the organization's learning from others' experience on its organizational outcomes (Argote et al., 1990; Baum & Ingram, 1998).

Finally, network relationships between organizations can greatly facilitate the learning between them and enhance the learning quality. Darr et al. (1995), for example, found that organizations obtained a learning benefit in the form of reduced production cost from the experience of others that were related by joint ownership, but no learning benefit was obtained from the experience of others that were unrelated firms. A number of subsequent studies demonstrated that interorganizational learning based on contact is beneficial. Examples come from U.S. hotel chains (Ingram & Baum, 1997), Manhattan hotels (Baum & Ingram, 1998), U.S. radio stations (Greve, 1999), Israeli kibbutzim (Ingram & Simons, 1999), and British pizza stores (Darr & Kurtzburg, 2000).

2.1.3 Limitations and Research Opportunities

Learning from the experience of other organizations has important effects on a focal organization's strategic actions (learning-induced strategic behavior change) and performance outcomes (learning-induced organizational outcome). This literature review illustrates that interorganizational learning is a complex and multifaceted phenomenon. Different types of experience generated by others have unequal impacts on an organization's learning processes and learning outcomes. Also, owing to diverse intrinsic characteristics, individual learning organizations are likely to be subject to and benefit from others' experience unevenly. Even though these studies contributed to our understanding about the conditions and contexts influencing interorganizational learning processes and outcomes (Ingram, 2002), interorganizational learning is still an area in which findings and theories remain fragmented (Huber, 1991; Schulz, 2002), providing considerable need and opportunity for future research (Huber, 1991; Ingram, 2002).

First, extant research has largely focused on interorganizational learning from those organizations that are successful, leading to a strong "success" bias (Miner et al., 1999). Clearly, experience generated by successful organizations is not the only source for interorganizational learning. Another important source for interorganizational learning is the experience generated by failed organizations (Ingram & Baum, 1997; Ingram, 2002; Kim & Miner, 2000; Miner et al., 1999). Less research attention has been directed to the effects of this learning source of failure experience. Failure, as a salient event, offers different information cues, induces different learning logics and actions, and as a result, may generate different learning outcomes (Ingram & Baum, 1997; Kim & Miner, 2000; Miner et al., 1999). Research is needed to examine how an organization learns from the failure experience generated by others as to decide its own strategic actions or improve its organizational performance.

Second, the failure experience generated by other organizations is likely to be tacit and far more ideal for causal inferences. Even worse, firms may construct illusionary causal relationships about the failures and learn things erroneously (Miner et al., 1999). Even assuming that a firm can identify the true degree of failure and the actual reasons behind the failure, changing environmental conditions may also deteriorate the value of learning from them. In addition, individual organizations, owing to their firm-specific characteristics, may be subject to and/or benefit from failure experience unevenly. Lastly, social connections between organizations could be of great help in discovering the causal processes for others' failure and facilitate the experience transfer. Therefore, research is needed to develop a framework to reflect the complex dynamics of failure-induced interorganizational learning. This framework will be helpful in integrating the fragmented results and theories in the existing literature.

Third, the findings and theories of previous research on interorganizational learning processes and outcomes are somewhat disconnected. The literature on interorganizational learning and strategic actions (learning process) focuses on a mimetic learning mechanism and highlights the role of uncertainty on the relationship between mimetic learning and organizational strategic action (Hanuschild & Miner, 1997). Meanwhile, the interorganizational learning and organizational outcomes (learning outcome) literature emphasizes experience spillover effects and the collective importance of a number of intermediate learning processes that account for improving organizational performance (Baum & Ingram, 1998). That interorganizational imitation induces strategic actions (learning process) can be perceived as one of the intermediate learning processes that have impacts on organizational outcomes. Few studies have, however, explicitly investigated the performance implication of this learning process, or at least controlled for this when examining the effects of learning from others' experience spillovers on a focal firm's performance outcome. Research is needed to integrate the findings and theories of existing research on learning processes and outcomes.

2.2. Conventional Perspective of Foreign Market Entry and the Outcome Implications of Foreign Market Entry Strategies

Entry into a foreign market is an important strategic decision. It has been studied from a variety of theoretical viewpoints. Early studies in the international business literature focused on the motives for market expansion, such as market seeking, resource seeking, efficiency seeking and knowledge seeking. A number of conventional perspectives were used to explain either one or more of these motives, such as monopolistic advantage theory (Hymer, 1976), internalization theory (Buckley & Casson,

1976; Hennart, 1982; Rugman, 1979, 1981), and the ownership-location-internalization (OLI) paradigm (Dunning, 1980, 1988). Studies using resource-based perspective suggest that firms seek international diversification to exploit their underutilized productive resources (e.g. Chang, 1995; Pan, 2002). These literatures mainly study industry characteristics and national advantages in attracting foreign investments or emphasize firms' specific advantages in technology, production, marketing, finance, and management in foreign markets.

Monopolistic advantage FDI theory. An early attempt to explain foreign market entry decisions is known as the monopolistic advantage perspective (Hymer, 1976; Kindleberger, 1969). Monopolistic advantages include the ability to acquire factors of production at a lower cost than other firms, the control of a more efficient production function, better distribution channels or a sophisticated or differentiated product. Caves (1971) suggested that technological and marketing expertise is the primary source of monopolistic advantages. This theoretical perspective asserts that firms engage in FDI when they possess resources and powers which give rise to monopolistic advantages in a host country, relative to host firms. The monopolistic advantage FDI theory has been supported empirically. For example, Kim and Lyn (1987) found that multinational firms possess monopolistic rents over their domestic counterparts. Caves (1971) showed that firms capitalize on the structure of their industry, specifically the presence of oligopoly, by utilizing their intangible assets in research and development and advertising in foreign markets. Mansfield, Romeo and Wagner (1979) also empirically demonstrated the relationship between U.S. multinationals and research and development and advertising intensive industries, and the tendency for these firms to maintain rent-yielding assets.

Internalization theory of FDI. This perspective is essentially an extension of the Coasian approach to understand the origin of firms (Coase, 1937; Williamson, 1975), but applied to their foreign value adding activities. Internalization theory predicts that a firm possessing intangible assets has an incentive to establish its operations overseas which can internalize its transfer of intermediate goods, know-how, and financial capital under common control and ownership so as to reduce transaction costs associated with this transfer and give a firm competitive advantages (Buckley & Casson, 1976; Hennart, 1982; Rugman, 1981; Teece, 1986). This has been found to be a parsimonious and powerful insight into explaining why a firm would own and operate a production facility in a foreign market instead of using licensing or other supply agreements with a local business entity in the foreign market (Caves, 1996; Martin, 2002). Empirical work in this area has repeatedly examined two sets of intangible assets -- technology intangibles and marketing intangibles. Both of these sets of intangibles have been found to predict strongly which firms will undertake FDI and how stock markets react to such expansions (Grubaugh, 1987; Morck & Yeung, 1992).

Eclectic theory of FDI. Integrating different perspectives from the areas of international trade, industrial organizations, and market imperfections, Dunning (1980, 1981, 1988) propounded an eclectic theory of FDI, which stipulated that the ownership advantage, location advantage, and internalization advantage are the three key components necessary to explain FDI. According to OLI, first, the firm must possess some form of sustainable ownership-specific advantage that allows it to compete with other firms in the markets it serves regardless of the disadvantages of being foreign.

Ownership-specific advantages could be reflected in firm size, global experience, country-specific experience, and the ability to compete on differentiated products (Agarwal & Ramaswami, 1992; Caves & Mehra, 1986; Dunning, 1993; Kim & Hwang, 1992; Kogut & Singh, 1988). Second, certain foreign countries must present some form of locational advantages that make them attractive sites for FDI. The attractiveness of a host country is reflected by its market potential in terms of size and growth rate, and by its potential investment risks as stemming from economic and political conditions (Dunning, 1993; Luo, 2001; Pan, 1996; Root, 1987). Third, internalization advantages refer to the advantages a firm can gain from integrating market transactions within the hierarchy of the firm (Dunning, 1988, 1993). A major concern in the international management is when to use FDI, an internalized hierarchical mode of operation, over trade and licensing. The eclectic theory of FDI suggests that a firm views FDI as preferable over trade and licensing, when internalizing transactions through FDI becomes relatively more efficient than the transaction costs associated with trade and licensing.

Resource-based perspective. This perspective views the firm, not the industry, as the source of competitive advantage (Capron & Hulland, 1999; Connor, 1991). The basic notion is that competitive advantage resides in the resources (assets and capabilities) available to the firm (Barney, 1991; Hunt & Morgan, 1995; Peteraf, 1993; Teece et al, 1997). Since resources are both heterogeneous across firms and imperfectly mobile, and do not depreciate through use in other markets, a firm tends to diversify to exploit their underutilized resources (Barney, 1986; Penrose, 1959; Prahald & Hamel, 1990). It is suggested that the payoff created by diversification through FDI can be magnified because of economic scale and scope (Buckley & Casson 1976). Furthermore, a foreign

firm can capitalize on economic rents derived not only from product and market diversity but also from the various advantages embodied in foreign activities such as marketing skills, knowledge acquisition, capability development, risk reduction, and complementarity synergies (Beamish & Banks 1987; Kogut, 1993). Some empirical studies have provided evidence to support the resource-based argument of foreign market entry. For example, Chang's (1995) study of Japanese electronics manufacturing firms' sequential investment in the U.S. found that Japanese firms entered new markets, which were related to their core business, to exploit their underutilized resources and to reduce the risk of failure. In a study of international joint ventures in China, Pan (2002) suggested that foreign firms' capability to export products and services to a host country reflected their competitive advantages over local partners, and that firms tended to exploit these advantages

Outcome Implications of Foreign Market Entry. Foreign direct investment theories (Caves, 1971; Dunning, 1981; Hymer, 1976; Rugman, 1982) and resource-based perspectives (Wernerfelt, 1984) suggest that a firm enjoys advantages by entering foreign markets. For instance, internationalization may benefit a firm to increase its economies of scope and scale by generating a large volume of output (Grant, Jammine, & Thomas, 1988; Kogut, 1985), to exploit its distinctive capabilities developed in home countries with its subsidiaries in different host countries (Bartlett & Ghoshal, 1989), to source less expensive inputs and diversify its risks across different geographic markets, and to gain superior returns form increasing market power (Kim, Hwang, & Burger, 1993; Porter, 1990).

The advantages arising from foreign market entry has prompted increased research interests in explaining the factors that contribute to the success of foreign direct investments. In terms of the outcome implications of internationalization, some empirical studies have shown that a higher level of internationalization achieved better FDI performance (Daniels & Bracker, 1989; Delios & Beamish, 1999, 2001; Grant, 1987; Harr, 1989; Tallman & Li, 1996; Vernon, 1971; Rugman, 1979). Others however have found a U-curve relationship between the extent of internationalization and market performance because the significant increase of governance costs associated with expanding into new geographical areas (Geringer et al., 1989; Hitt, Hoskisson, & Kim, 1997; Kimura, 1989; Morck & Yeung, 1991).

The findings about FDI entry mode and performance are mixed. Daniels and Bracker (1989) provided evidence that foreign market entry, regardless of mode, significantly increases returns on sales and assets. Other research has compared the relative financial performance between and within modes. For example, Tang and Yu's (1990) revenue maximization model concluded that a wholly owned subsidiary was the optimal strategy because it generates the highest level of economic profit and maximizes control of critical knowledge indefinitely. Woodcock, Beamish, and Makino (1994) found that new venture direct investments outperformed the joint venture mode, which in turn outperformed direct investments through acquisition. A number of subsequent studies suggested and demonstrated that the relationship between FDI entry mode and performance depends on national differences (Beamish & Delios, 1997; Makino & Beamish, 1998)

The resource-based view of firms locates competitive advantages with the internal capabilities of a firm and suggests that diversification into products that use the existing

rent-generating resources of the firm will generate economies of scope in the use of these resources and thus earn greater profit (Barney, 1991; Prahalad & Hamel, 1990; Wernerfelt, 1984). Previous empirical studies of FDI product diversification strategy and performance provide inconclusive results. Early studies found no significant performance effects from degree of diversification purely based on measures derived from SIC categories (Palepu, 1985). Harrigan (1988) showed that horizontally related ventures performed better than ventures unrelated to their sponsors in terms of venture success, survival, and duration. Li (1995) found that foreign subsidiaries that stay in the parent firm's main product areas will survive longer than those that diversify in a sample of US computer and pharmaceutical industries over the 1974-89 period. Other studies have suggested that since product diversification is likely to interact with international market diversification (Hitt et al., 1994) and resource deployment (Harrigan, 1988), its relationship with performance at the business level is expected to be complex and conditional on specific contexts (Woodock et al., 1994). The most common prediction is that related diversification based on sophisticated diversification measures seems to predict superior performance.

2.3 Organization Learning: Foreign Market Entry and Outcome Implications

The phenomenon of internationalization has started to receive the attention of organization theorists and inspire explanations from multiple lines of organizational theory which take a different route than the aforementioned conventional perspectives (Bastos & Greve, 2003; Guillén, 2000; Henisz & Delios, 2001). Foreign expansion represents a form of organizational growth by establishing a new subsidiary for the

purpose of manufacturing or providing a service in a foreign country. Compared with indigenous firms, foreign subsidiaries are less familiar with the foreign market. It thus becomes particularly important for a foreign firm to learn from its own prior international experience and the experience spillovers from other foreign firms in the host country market to overcome the disadvantages as compared to domestic incumbent competitors.

2.3.1 Learning from Own Experience: Foreign Market Entry and Outcome Implications

Own experience is a prime source of learning in organizations (Levitt & March, 1988; Penrose, 1959). When a firm internationalizes, it can use the knowledge accumulated in current foreign markets to select other foreign markets in which the firm may possess advantages and can succeed in making a foreign entry (Barkema, Bell, & Pennings 1996; Barkema & Vermeulen, 1998; Zaheer 1995).

Foreign Market Entry Decision. The international management literature has often remarked on how the heterogeneity of a firm's history of overseas operations influences its foreign investment decisions. It is shown that greater host-country experience helps to develop multinational expansion capabilities by reducing the overall liability of foreignness -- whether defined in social, economic, or political dimensions (Zaheer 1995). Host-country experience and more general international expansion capabilities developed through a sequence of overseas investments influence decisions about subsequent foreign investments (Chang, 1995, Chang & Rosenzweig, 2001, Kogut, 1983). Thus, foreign market expansion can be considered as a sequential learning process with the initial entry viewed as a platform for future expansions in the host country

(Chang, 1995). Empirical studies provide evidence to support this idea. For example, Davidson (1980) found that prior experience in a host country tends to increase the probability of choosing the same location for sequential foreign investments. Subsequent studies such as Caves and Mehra (1986) and Kogut and Singh (1988) have found similar effects. In a similar vein, Hennart and Park (1994) showed that the experiential knowledge that Japanese firms gained in manufacturing a product in the United States can be transferred to another product and thus facilitate subsequent foreign investments into the United States. When investigating Japanese investments into the United States, Kogut and Chang (1996) and Chang (1995) found substantial variation across firms in sequential investment behaviors, reflecting the differences in their histories of previous investments in the United States.

FDI Outcomes. Researchers have examined the impact of knowledge and learning on a firm's internationalization efforts (Lu & Beamish, 2001; Shrader et al, 2000). An international market expansion strategy offers opportunities for growth and value creation, but the potential for failure is still strong for newly internationalized companies given the difficulties associated with their liabilities of newness (Stinchcombe, 1965) and foreignness (Johanson & Vahlne, 1977). In a study of foreign investment survival in the United States, Shaver, Mitchell, and Yeung (1997) found that investments by firms with experience in a host country are more likely to survive than are investments by first-time entrants. As a firm accumulates experience through learning by doing, it may overcome the disadvantages intrinsic to foreignness and alter its subsequent learning processes. A number of studies have shown that foreign firms learn from their previous experience in a host market, and such experience improves their performance in the host

market (Newbould, Buckley, & Thurwell, 1978; Li, 1995; Pennings, Barkeman, & Douma, 1994). Studies also suggest that while organizational learning enhances performance, the learning ability varies among firms and is moderated by the foreign environment and their resource base (Eriksson et al, 2000; Oviatt & McDougall, 1997; Zahra et al, 2000).

2.3.2 Learning from Others' Experience: Foreign Market Entry and Outcome Implications

A firm's foreign expansion decision can be considered in the context of the interorganizational learning dynamics among firms (Guillén, 2002, 2003; Henisz & Delios, 2001; Lu, 2002; Yiu & Makino, 2002). Establishing a subsidiary abroad is a core organizational change that introduces uncertainty. Potential foreign investors can resolve uncertainty in a foreign market by referring to the market entry experience accumulated by peer investors. Since foreign activities of early investors related to sourcing, infrastructure development, production, and so forth, convey important information for later investors. As the information diffuses and becomes public knowledge, new investors can learn from information spillovers and subsequently make better-informed decisions on potential investment opportunities and pitfalls, leading to an improved organizational performance (Knickerbocker, 1973; Mitchell et al. 1994). Therefore, a foreign entrant may benefit from the prior experience of early entrants by mimicking their foreign entry decisions and/or by reducing its failure risk in the host market.

Foreign Entry Strategy. Explanations for the observed pattern of imitation range from social arguments of legitimacy or the establishment of rules of thumb (DiMaggio &

Powell 1983) to rational calculation in light of herd behavior (Abrahamson & Rosenkopf 1993; Banerjee, 1992; Bikhchandani, Hirshleifer, & Welch, 1992, 1998). Regardless of whether the motivation is rationally or socially driven, firms considering foreign market entry may decide that a better tactic is to imitate the actions of early entrants or role models (Greve, 1998, 2000; Guillén, 2002; Martin et al., 1998). The mimetic learning argument has received empirical support in different foreign entry strategies, including foreign entry decisions (Henisz & Delios, 2001; Guillén, 2002), location strategies (Bastos & Greve, 2003), and entry mode choices (Guillén, 2003, Lu, 2002; Yiu & Makino, 2002). Beyond documenting the existence of imitation in the international context, organization scholars have also investigated heterogeneities in mimetic learning among organizations.

For instance, two modes of imitation -- frequency- and trait-based imitation -- have been discussed in foreign market entry decisions (Guillén, 2002; Henisz & Delios, 2001; Lu, 2002). Frequency-based imitation refers to the tendency to imitate the entry strategy that has been adopted by large numbers of other investors. In frequency-based imitation, all peer investors are supposed to exert the same impact on a firm's foreign entry decision-making process. Trait-based imitation is a more selective imitation process, in which a firm models itself after a subset of peer investors. The subset is based on identifiable characteristics, such as coming from same home country or affiliated with same business groups (Guillén, 2002; Henisz & Delios, 2001).

Interorganizational learning often occurs at the level of the organizational field where actors can mutually recognize each other's presence and actions, leading to their sharing experiences and learning from each other (DiMaggio & Powell, 1983). A firm's

industry has been frequently proposed as a relevant organizational field (Fligstein, 1985; Haveman, 1993; Scott, 1995; Ingram & Baum, 1997) and imitation in the same industry takes place for both competitive and institutional reasons (DiMaggio & Powell, 1983). Recently, several studies have empirically tested the occurrence of imitation among foreign investors at the home country-industry level (Bastos & Greve, 2003; Guillén, 2002; Henisz & Delios, 2001; Lu, 2002).

Besides mimetic learning based on observation, another interorganizational learning mechanism identified by Miner and Haunschild (1995) is contact learning, which involves transmission of routines through formal and informal relationships between organizations and their members, including personal ties, board of director interlocks, and interorganizational relations. In the international context, Martin, Mitchell, and Swaminathan's (1995) and Martin, Swaminathan, and Mitchell's (1998) studies show that Japanese auto firms followed their buyers, competitors, and non-competing suppliers into the United States. Bastos and Greve (2003) found that lending ties and board interlocks among Japanese firms facilitate interorganizational imitation about foreign entry locations.

Furthermore, literature in this stream has identified that foreign firms are not equally exposed to the mimetic forces in a foreign entry strategy. International management scholars argued that firms with greater host-country experience are less likely to depend on the experience of others as an information source. Experienced firms can instead draw from their own internal operating experience to assess a host country's institutional, technological, and competitive environments (Barkema et al., 1996; Chang & Rosenzweig, 2001; Delios & Henisz, 2000). Therefore, a firm's propensity to imitate

other foreign firms' entry strategy in a host country will be weaker if it has relevant experience associated to the host country (Guillén, 2002; Henisz and Delios 2001).

FDI Outcomes. The performance outcome of a new foreign firm is also likely to be affected by its learning quality from the experience of other foreign firms in the host market. Early foreign firms operating in a host country generate information spillovers that have important value for a later firm undertaking a foreign direct investment. Studies have scrutinized the impact of the presence of early foreign firms on the performance of new foreign firms in a host market (e.g., Mascarenhas, 1992; Mitchell, 1991; Mitchell, Shaver, & Yeung, 1994; Shaver, Mitchell, & Yeung, 1997). For instance, Mitchell, Shaver and Yeung (1994) presented evidence that there is an inverse U-shaped relationship between foreign presence and the survival of foreign entrants. The same authors found in another study that foreign presence mostly affects the survival of foreign entrants if entrants are already operating in the country, but in a different industry than that in which an entry has been attempted (Shaver, Mitchell, & Yeung, 1997). They argue that firms that are already in the country are in the best position to benefit from the learning spillovers generated from foreign presence, and that those that do not possess direct information about the industry will benefit the most from these spillovers.

2.3.3 Limitations and Research Opportunities

The above literature that relates foreign market entry and FDI outcomes (e.g. survival) to interorganizational learning dynamics is limited in that it has exclusively emphasized learning either from the whole populations or from success in particular (e.g.

Bastos & Greve, 2003; Guillen, 2002; Henisz & Delios, 2001; Lu, 2002). Little research has focused on foreign firms' learning from prior failures in the host market. Yet failure is a salient, well-publicized, rare event that may provide very different clues for learning than learning derived from the experience of successful FDIs. In contrast to learning from operating FDIs in the market, learning from prior FDI failures may require a foreign firm to engage in different inferential reasoning and in turn present dissimilar patterns of interorganizational learning processes and outcomes (Miner et al., 1999). Therefore, a new interorganizational learning model, which emphasizes the effect of prior FDI failure on foreign entry decisions as well as FDI performance, is warranted.

To advance a failure-induced interorganizational learning model, it requires incorporating contingency factors to clarify the conditions under which prior FDI failures induce a firm's foreign entry decision as well as improve the survival chances of the foreign entries. Although previous studies have illustrated several important factors that affect foreign firms' interorganizational learning process and outcomes, the findings and theoretical explanations are fragmented.

Another limitation in this line of research is that previous studies have not considered a firm's self selection effect in entering a foreign market when investigating the causal relationship between the early FDI experience and the outcome of its entries in that host market. A firm did not make foreign entry decisions randomly. There is a variety of determinants that could lead the firm to make entry decisions. These determinants may select out a certain type of firms (e.g. large or competitive firms) to launch foreign entries as compared to other types of firms (e.g. small or noncompetitive), and thus construct a nonrandom sample for examining the causal relationship between interorganizational learning and firm outcomes. This may introduce a sample selection bias (Berk, 1983;

Heckman, 1976, 1979; Goldberger, 1981). For instance, the impact of early FDI experience on the performance outcome of a firm's foreign entry can be confounded with its impact on the firm's likelihood of launching that entry. Ignoring this effect may cause the appearance of a causal relationship where none exists in fact (Heckman, 1979).In order to eliminate the concern of entry selection bias, research should investigate, or at least control for, the entry probability of foreign entrants in the function of FDI survival.

As I have analyzed in the literature review, there are considerate opportunities to extend this literature by developing a comprehensive model involving both interorganizational learning processes and outcomes. This failure-induced interorganizational learning model aim to: 1) investigate the causal effects of prior FDI failure experiences on the entry decision and survival chances of later FDIs in the host market; 2) systematically identify a set of contingency factors that may influence the the relationship between prior FDI failures and the entry decision/survival chances of later FDIs; and 3) incorporate the probability of a firm's foreign entry decision in the causal model on FDI survival.

CHAPTER 3
THEORETICAL FRAMEWORK AND RESEARCH METHOD

This chapter advances a conceptual framework of failure-induced interorganizational learning with the aim to resolve the limitations identified in the literature review in Chapter 2, regarding the effect of interorganizational learning on foreign entry strategy and FDI survival. The first section of this chapter provides an overview of the conceptual framework and raises a set of specific research questions to be addressed separately in the following chapters. The second section elaborates the core components concerning failure-induced learning and foreign entry decisions. The third section focuses on the components of failure-induced learning and FDI survival. The last section of the chapter provides a brief description of the data and the research methods to be used in testing the research questions.

3.1 Overview of the Conceptual Model

Figure 3-1 presents the conceptual framework for this thesis. Based on an interorganizational learning perspective, the framework investigates two causal models: 1) how failures of early foreign direct investments (FDI) in a host market affect subsequent foreign entries in that market; and 2) in turn, how the survival prospects of these subsequent foreign entries are influenced by the same source of FDI failures at the time of their entries by controlling for their entry probabilities in the host market. Then, I incorporate a set of contingency variables, depicting the nature of pivotal learning components, to interact with the two baseline causal models, respectively.

The first causal model relating "FDI Failures in the Host Country before Entry" to "Foreign Market Entry Decision" indicates an interorganizational imitation process, more specifically an outcome-based learning process. It mirrors the first research question -- "*How does a potential foreign investor respond to prior FDI failures in the host market in formulating its own entry strategy in that market?*" Outcome-based imitation, noted as one of the mimetic learning modes, indicates that organizations use the outcomes that occur after other organizations' use of a practice to determine whether they should adopt the same practice (Haunschild & Miner, 1997; Miner & Raghavan, 1999). The increasing number of FDI failures in a host market – an outcome of prior foreign entrants in the market – will shape the views of managers, consultants, media, and other constituents regarding the potentials and risks of the host market. It provides an important learning source for potential investors to model their foreign entry strategies in that market. Arrow number ① in Figure 3-1 indicates the causal effect of prior FDI failures on the subsequent foreign entry decisions, which I labeled as "negative-outcome induced learning".

The second causal model relating "FDI Failures in the Host Country before Entry" and "FDI survival" depicts the effectiveness of learning from the failure experience of other organizations. It reflects another research question of interest – "*How does a later foreign entry benefit from the same source of FDI failures in terms of its survival rate in the host market?* Organization learning from the experience of others before they were founded is defined as a form of "congenital learning" (Huber, 1991). Congenital learning is important to an organization's success since "what an organization knows at its birth, will determine what it searches for, what it experiences, and how it

interprets what it encounters" (Huber, 1991: 91). Organizational failures in many cases are salient and well-publicized events (Miner et al., 1999). Managers would naturally attend to failures which provide rich information that matters for competition. Also, for organizations to actually learn from others (as opposed to merely mimic others), an observation of outcomes is necessary (Foster & Rosenzweig, 1995). Therefore, FDI failures in the past serve as an important source of experience spillover that spurs the congenital learning of later foreign entrants, and enhances their survival rates in the host market. Arrow number ③ in Figure 3-1 indicates the causal effect of prior FDI failures on FDI survival, which I label as "congenital learning".

However, learning from others' failure experience is not easy or universal for all organizations (Levinthal & March, 1993; Levitt & March, 1988; Miner et al., 1999). The failure experience provided by "sender" organizations could be ambiguous. Owning to diverse firm-specific characteristics, learning organizations are likely to be unevenly subject to and/or benefit from the failure experience. Also the way a learning organization is related to "sender" organizations could facilitate or constraint interorganizational learning. Learning theorists have suggested that one key to understand abstract interorganizational learning phenomena, is to make clear how characteristics of the pivotal components in learning, i.e. the sender organizations, the receiver organizations, and the relationship between them, affect the learning processes and outcomes (Ingram, 2002). This line of thinking provides us a framework to systematically identify the contingency factors that are likely to moderate the relationship between prior FDI failures and later foreign entry decisions and FDI survival. Arrows ③ and ④ in Figure 3-1 reflect this by highlighting a set of contingency factors, with the aim

to answer the questions – "*what are the contingency factors that could moderate the effects of early FDI failures on the subsequent foreign entry decisions and survival chances of these foreign entries in the host market?*"

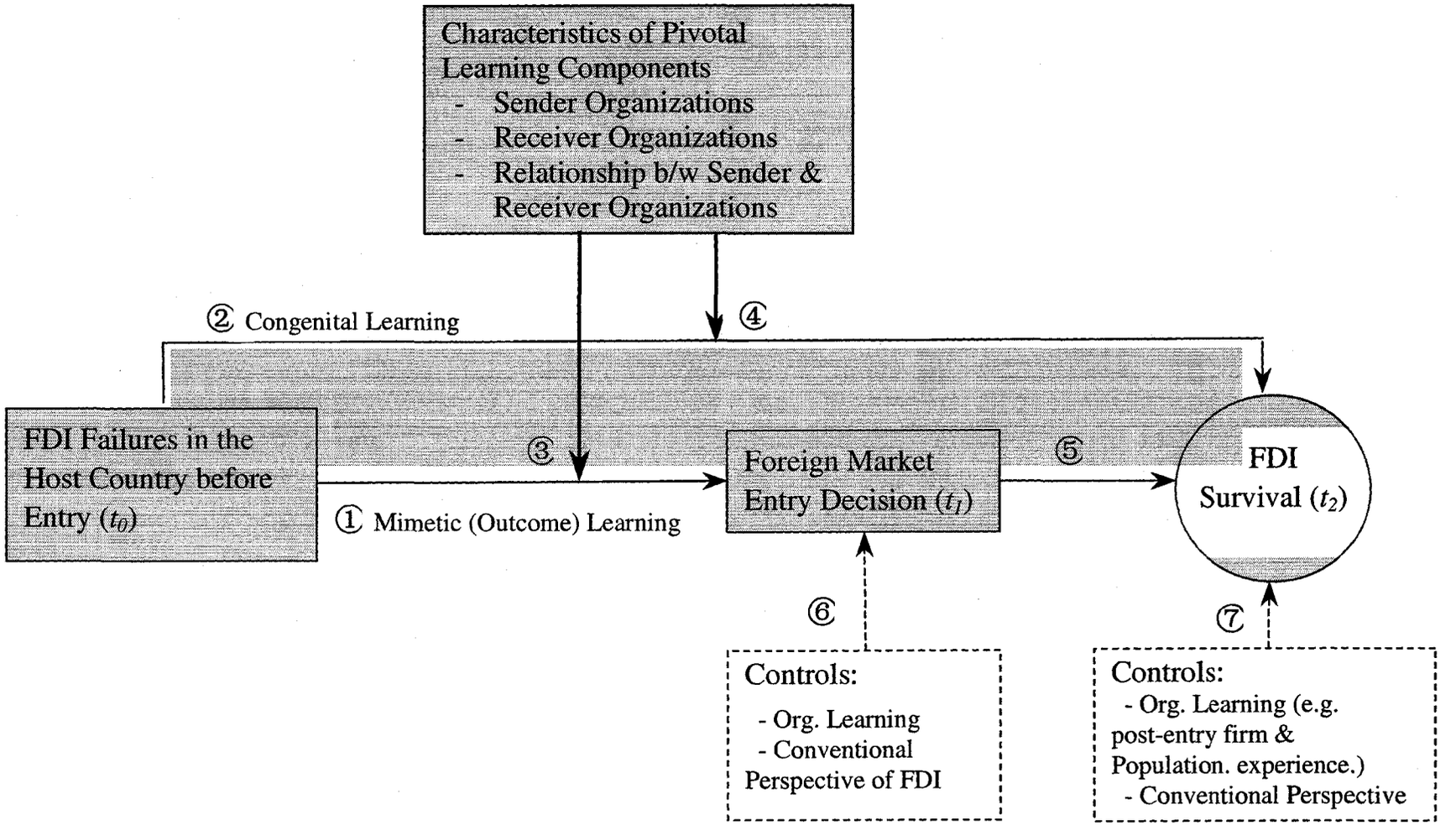
Moreover, the two causal models of failure-induced interorganizational learning (arrows ① and ②) should not be considered as independent. The decision to enter a foreign market, selects a foreign investor in to or out of the sample in which its foreign entries' survival rates are investigated. In other words, the relationship between interorganizational learning and foreign market entry decisions (arrow ①) may confound the causal relationship between interorganizational learning and FDI survival (arrow ②). This was considered as a self selection issue and has been widely acknowledged in the literature that may arouse specification error or "omitted variables" bias (Heckman, 1979; Sanders & Nee, 1987). It is necessary and important to consider such selection effect on FDI performance. Arrow ⑤ in the figure is to resolve this concern by incorporating the foreign entry probability (outcome of self selection) into the function of FDI survival.

The probability of foreign entry generated in the first causal model consists of different elements, including predictions from conventional foreign direct investment perspectives, resource-based perspectives, and interorganizational imitation. Thus, a foreign firm's self-selection process in terms of entering a foreign market points to the collective importance of these multiple determinants. After incorporating a firm's foreign entry probability into the second model, I am able to estimate an aggregate effect of the firm's self-selection process on FDI survival. Conceptually, the implication of mimetic learning on FDI survival is embedded within the collective effect of self-selection on FDI survival. Hence, by incorporating a firm's foreign entry probability in the prediction of its

congenital learning on FDI survival, I can rule out, or at least control for the confounding effects of a firm's self-selection process on its likelihood of making foreign entries, which may bias the causal relationship between learning from early FDI failures and the survival prospects of the firm's foreign entries. In addition, the implication of mimetic learning-induced strategic action on FDI survival could be isolated from a number of other congenital learning activities on FDI survival, such as search, grafting, experimentation, and etc.

The dotted arrows ⑥ and ⑦ consider alternative explanations of foreign market entry and FDI survival, which are not the focus of this thesis. For instance, arrow ⑥ includes a number of determinants emphasized in the conventional perspective of foreign market entry, such as firm demography (age and size), firm-specific assets, business group affiliation, international and product diversification, as well as economic, institutional, and political conditions in the host country-industry. Similarly, arrow ⑦ highlights factors that have been noted by the prior literature as contributions to FDI survival. Besides including a similar set of variables controlled in the foreign market entry analysis, in particular, I consider post-entry learning processes and control for those effects in the model.

FIGURE 3-1 Conceptual Framework



3.2 Failure-induced Learning and Foreign Market Entry

Learning theorists characterize organizations as experiential systems that adapt incrementally to past experience (Cyert & March, 1992; Levitt & March, 1988). Largely bounded by imperfect information to learn from their own experience, organizations can learn from the experience of other organizations. For instance, managers are likely to attend to the outcome results of a particular strategy or practice used by other organizations, to determine whether they should adopt it, a mode of learning termed as "outcome-based" imitation (Haunschild & Miner, 1997; Miner & Raghavan, 1999). In contrast to the other two modes of imitation, i.e. frequency- and trait-based imitation, outcome-based imitation emphasizes the impact of technical factors, and suggests that both positive and negative outcomes convey useful information for prospective learners (Haunschild & Miner, 1997: 478). Empirical evidence has found that firms would like to imitate those strategies and practices that appear to be beneficial (Conell & Cohn, 1995; Hanuschild & Miner, 1997) and avoid those that appear harmful (Chuang & Baum, 2003).

Owing to a firm's limited knowledge in production and marketing capabilities in a new country, foreign expansion is an important strategic decision that entails substantive resource constraints and informational challenges (Martin et al., 1998). Foreign firms encounter numerous sources of uncertainty that emanates from the economic, cultural, and institutional difficulties in the host country. Therefore, it is particularly important for a foreign firm to turn to other foreign firms' practices and performance experience for clues about the rewards or risks of entering the host market. Frequency- and trait-based imitation has received empirical support in research on foreign market entry strategies

(Guillén, 2002; Henisz & Delios, 2001). In contrast, outcome-based learning so far has received less attention in the foreign market entry literature. Negative outcome-based learning, such as learning from failure, has not yet received adequate research attention in the international management domain.

How does a potential foreign investor respond to prior FDI failures in the host market in formulating its own entry strategy in that market? A large number of accumulative FDI failures in the host market suggest that in the host market non-competitive foreign entrants have exited, improved the average fitness level of the FDI population, and thus increased the level of competition in the host market. Potential foreign investors will be alerted by the increasing numbers of FDI failures in the host market, and decrease their foreign entry rates accordingly to avoid a similar outcome as failed entrants. A negative relationship is then expected between a firm's likelihood of launching new entries in the host market and the number of historical FDI failures in that market.

In addition, the occurrence of reduced foreign entry rates is not universal for all potential foreign investors and should be contingent on certain conditions. To better comprehend this phenomenon, it is necessary to identify moderating influences on this negative-outcome induced learning process. In this thesis, I follow Ingram's (2002) study and investigate how the characteristics of three pivotal learning components affect the relationship between learning from prior FDI failures and foreign market entry decision. The characteristics emphasized here are the ambiguity of FDI failure experience, the self experience of potential foreign investors in the host market, and the social contacts between the potential foreign investor and experienced foreign firms in the host market.

Ambiguity of FDI experience. The experience generated by other organizations is usually ambiguous, since underlying causes leading to the failure of other organizations are complex and difficult to understand (Levinthal & March, 1981; Lippman & Rumelt, 1982; Reed & DeFillippi, 1990). Ambiguous outcomes provide less reliable information and are likely to reduce firms' tendencies for mimetic learning. Definite and homogeneous outcomes provide salient and systematic information, and are likely to facilitate a firm's learning based on the observed outcomes. Applying this idea into our examination of a failure-induced mimetic learning model, I expect that as the level of the outcome ambiguity increases, the effect of outcome-based learning on subsequent foreign entries become weakened. More specifically, as FDI failure experience available in the host market becomes more complicated, potential foreign investors are likely to be confused on what exactly to learn and not to learn, leading to a reduced tendency to react to FDI failures.

Firm experience. The baseline causal model between FDI failures and foreign market entry assumes that foreign firms are equally exposed to prior FDI failures in the host market. Learning theorists have highlighted that interorganizational learning is selective which can be partly accounted for by firm-level heterogeneities (Abrahamson & Rosenkopf, 1993). One of the important firm heterogeneities often discussed in the international management literature is a foreign firm's experience in the host market (Chang, 1995; Chang & Rosenzweig, 2001; Delios & Henisz, 2000; Kogut 1983; Kogut & Chang, 1996). In contrast to investors with no experience in the host country, experienced investors are more capable to make sense of FDI failures, and more likely to

react to this source of technical information. Inexperienced foreign investors may also receive the information about prior FDI failures in the host country through random observation, business press, and/or market analysts. Nevertheless, their limited understanding of the host country environment may blind them to this technical information or at least require more time to analyze these FDI failures before taking any further actions. Following this logic, the negative effect of prior FDI failures in a host country on foreign market entry decisions will be stronger for firms experienced in that country than for firms inexperienced in that country.

Social Contact. The last contingency factor comes from the relationship between organizations. In addition to mimetic learning-based observation, a firm is more likely to learn from other organizations with which it is in social contact (Marsden & Friedkin, 1993; Miner & Haunschild, 1995). It has been noted that firms with social contacts are more likely to access the experience of tied organizations and are bound to give more weight to the received information and react to it (e.g. Fligstein, 1991; Haunschild & Beckman, 1998). Social contacts can help foreign firms to become familiar with the host country's general environment and have an idea about the opportunities and risks of operating in the host market.

Foreign firms are embedded in different types of social contacts, such as partnerships, trade exchanges, and competitive relationships, which put them in a position of frequent communication and information sharing. FDI failures by early entrants cannot exert an identical influence on all potential foreign firms, but instead spread more readily to those firms that have ties with the early entrants in the host market. In contrast to firms having no ties with the early entrants in the host country, foreign firms with the ties are

more capable to make sense of prior FDI failures, and thus more likely to react to this source of technical information. Therefore, the negative effect of prior FDI failure in a host market on subsequent foreign entries will be stronger for foreign firms tied with other firms who have experience in the host market.

3.3 Failure-induced Learning and FDI Survival

A firm can benefit from learning from others' experience, at least for some type of experience, under certain situations, or within specific contexts (Baum & Ingram, 1998; Henderson & Cockburn, 1996; Ingram & Baum, 1997; Irwin & Klenow, 1994; Zimmerman, 1982). Research in international management has related FDI performance to experience spillovers from other foreign firms, and showed that subject to some contingencies, a foreign investment is more likely to survive the greater the foreign presence at the time of its investment (Mascarenhas, 1992; Mitchell, 1991; Mitchell, Shaver, & Yeung, 1994; Shaver, Mitchell, & Yeung, 1997). Nevertheless, existing studies tend to focus on learning either from the whole populations or from successes (survivors). A number of other types of experience have been studied less frequently, such as foreign-entry experience and organizational failure (Barkema et al., 1996; Kim & Miner, 2000; Ingram, 2002; Ingram & Baum, 1997; Miner et al, 1999).

Failure is more salient than success in many cases, and may involve different learning logics and activities (Haunschild & Sullivan, 2002; Suchman, 1994). Learning theorists suggest that when firms learn from others' success, they often apply a simple copying rule and attempt to imitate the exact strategy of successful firms (Sitkin, 1992; Miner et al., 1999). In contrast, learning from failure may require firms to engage in a different inferential reasoning, and a high level of search and experimentation, to

generate a beneficial result (Miner et al., 1999). Therefore, a positive relationship is expected between the failure experience spillovers of early FDIs on the survival prospect of later foreign entrants.

Learning from others' failure experience may not always be equally beneficial to all organizations. Learning from others' failure is generally difficult, because it is difficult to make good inferences that can guide future actions (Miner et al., 1999). Undoubtedly, making appropriate inferences from others' failures can be achieved. Then the question becomes, under what circumstances can appropriate inferences occur and lead to an improved organizational outcome, and what are the possible problems in making such inferences? To answer the question requires a systematical identification of the relevant contingency factors. Similarly, I follow Ingram's (2002) study and investigate how the characteristics of three pivotal learning components affect the relationship between failure-induced learning and FDI survival. The characteristics emphasized here are the same as for the learning process, i.e. the ambiguity of FDI failure experience, the self experience of potential foreign investors, and the social contacts between the potential foreign investor and experienced foreign firms in the host market.

Ambiguity of FDI failure experience. The experience generated by other organizations is ambiguous and far more ideal for causal inferences (Dawes, 1988; Einhorn & Hogarth, 1978). Facing the noisy information, it is not easy for managers to identify the underlying determinants of performance, to make the right inferences about causal connections, and/or to apply them in a highly volatile context (Demsetz, 1973; Denrell & March, 2001; Levinthal & March, 1993; Miner & Mezias, 1996). Even worse, firms may construct illusionary causal relationships about the failures and learn

incorrectly (Miner et al., 1999). Even if one knows the true degree of failures and the actual reasons behind them, changing environmental conditions may deteriorate the value of learning from them. Therefore as the ambiguity of FDI failure experience increases, the positive effect of prior FDI failures on the survival prospects of foreign entrants in a host market will be weakened.

Firm experience. An organization's potential benefit for learning from others' experience may depend on its own characteristics. Prior relevant experience that may prepare an organization to absorb external knowledge can be such an important characteristic (Ingram, 2002). Prior relevant experiences create a strong path-dependency of the knowledge stock of organizations. Organizations having no prior relevant experience may have difficulty in recognizing the opportunities or integrating new knowledge, and hence, be less likely to benefit from other organizations' experience. As support for this idea, Shaver, Mitchell, and Yeung (1997) showed that foreign firms that are already in a host country are in the best position to benefit from the experience spillovers generated from early foreign entrants in that country. As a direct extension of this idea, I expect that the positive effect of prior FDI failures in a host market on FDI survival is stronger for firms experienced in that country than for firms inexperienced in that country.

Social contact. Owing to the difficulty of collecting and interpreting others' experience, network relationships between organizations could facilitate interorganizational learning, and more importantly, enhance the learning quality. Organizations tied to others are more likely to be aware of failure events in the market,

and also are highly possible to understand the true causes behind these failures. As emphasized above, FDI failures by early entrants do not exert identical influence on all foreign firms, but instead may spread more readily to those firms that are tied to early foreign entrants. Hence, close social contacts (e.g. common corporate ownership) can help foreign firms to absorb and exploit others' FDI experience in a foreign market. I expect that the positive effect of prior FDI failures in a host market on the survival of foreign direct investment will be stronger for foreign firms who are tied to other experienced FDI investors in the same host market.

In addition, since I have examined the foreign market entry decision in the first causal model, I can incorporate the entry probability exported from the first model to this second causal model that focuses on the outcome implication of failure-induced learning. By considering the effects of the foreign entry decision on FDI survival, I am able to control the entry selection effect which may potentially bias the true causal relationship between prior FDI failures and later foreign entrants' survival prospects.

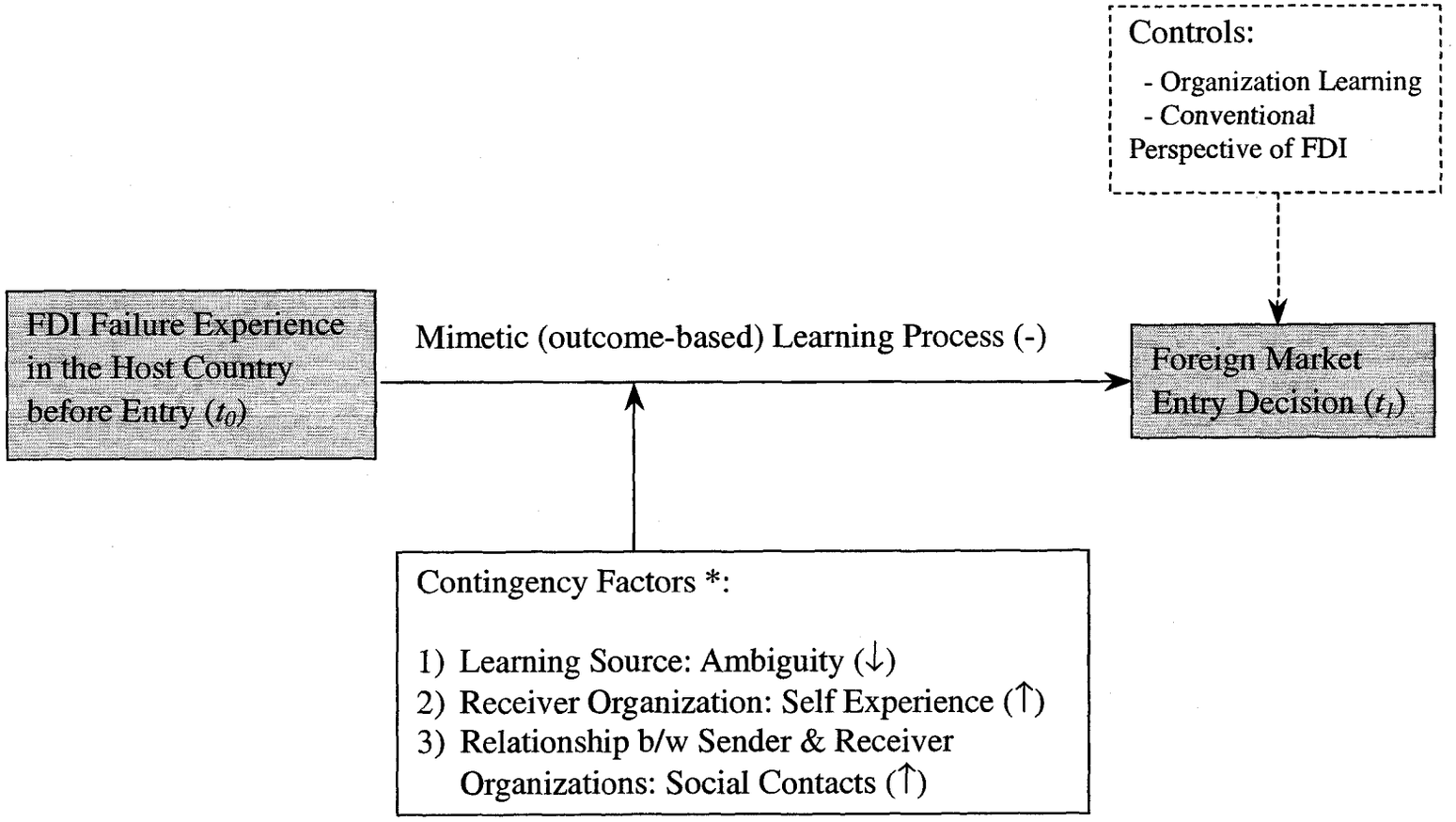
3.4 Organization of Empirical Analysis

I empirically test the above hypotheses in two separate studies. For each study, I will identify research opportunities, develop hypotheses, present analyses and findings, and discuss the implications. Specifically, Chapter 4 focuses on a negative-outcome induced learning process (a mode of mimetic learning) by examining the relationship between prior FDI failures and foreign market entry. I also examine several contingent factors that influence this negative-outcome based learning processes. The main ideas of

investigation in Chapter 4 are summarized in Figure 3-2.

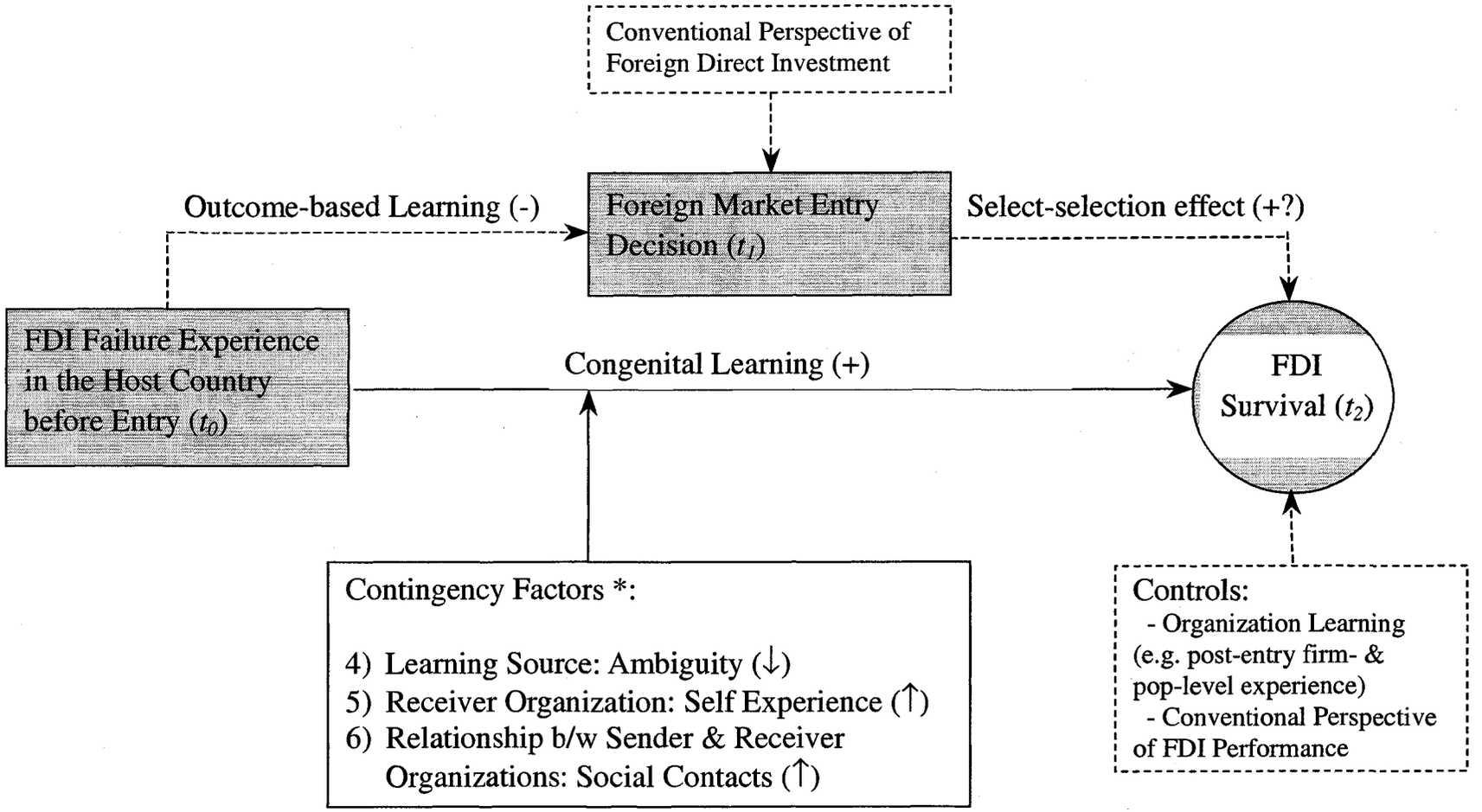
Chapter 5 focuses on a congenital survival-enhancing learning model by examining the relationship between prior FDI failures and foreign direct investment survival. My examination controls for the potential effect of entry selection bias, which excludes the effect of outcome-based learning on FDI survival. Similar to the study one in Chapter 4, a set of contingency factors that influence interorganizational learning are introduced to interact with the main effects on the survival-enhancing learning model. I summarize the main ideas of the second study in Figure 3-3.

FIGURE 3-2 Negative-outcome Induced Learning and Foreign Market Entry



* ↑ indicates strengthening the mimetic (outcome-based) learning effect; ↓ indicates weakening the mimetic learning effect.

FIGURE 3-3 Failure-induced Congenital Learning and FDI Survival



* ↑ indicates strengthening the congenital learning effect; ↓ indicates weakening the congenital learning effect.

3.5 Research Method

Our empirical setting is Japanese firms' foreign investments in the manufacturing sector in China in the 1980-2000 period. In this section, I first briefly describe the data sources that will be used for empirical analyses, including Japanese firm-level and subsidiary-level data. Then, I briefly introduce the research designs for the two failure-induced learning models to be tested in the following Chapter 4 and 5.

Data Sources

I derived Japanese parent information from *Nihon Keizai Shimbun*'s Nikkei Economic Electronic Databank System (NEEDS). This source provides comprehensive annual data on Japanese publicly listed firms' financial, accounting information, qualitative business information, and demographic information (e.g. date of founding, firm size). I derived subsidiary-level data using annual editions of Toyo Keizai's annual survey of overseas operations of Japanese firms (e.g. *Kaigai Shinshutsu Kigyo Soran*). We obtain host country's economic, institutional, and industry information from *China Statistical Yearbook* (various years edition).

Firm-level data. NEEDS is the largest economic databanks of public firm-level information in Japan. It provides an extensive collection of business-oriented data, including reports on domestic and overseas macroeconomic analyses, annual business results, financial indices, stock prices, and bond values, as well as corporate and industrial information. For the analysis in this thesis, I include firm-level data such as a firm's age, total sales, total assets, R&D intensity, advertising intensity, firm diversity, and various types of FDI experiences.

Subsidiary-level data. Toyo Keizai published its annual survey of overseas operations of Japanese firms since 1970, providing extensive information on the overseas activities of the subsidiaries of Japanese private and publicly listed firms via an annual survey. It assembles information on the host country of the subsidiary, the date of subsidiary formation, the industry in which the subsidiary operates, the location whether the subsidiary sets up plants, the mode of entry (classified into four modes: wholly-owned subsidiary, joint venture, acquisition, and capital participation), the annual sales, total capital invested in the subsidiary, the total number of employees, the total number of Japanese expatriates, and the financial performance assessed by the general manager of the subsidiary based on a three-point scale (loss, breakeven, and gain).

A number of international management scholars have used this dataset to publish papers in various journals, including the *Academy of Management Journal*, the *Administrative Science Quarterly*, the *Journal of International Business Studies*, and the *Strategic Management Journal* (Delios & Beamish, 1999, 2001; Henisz & Delios, 2001; Hennart, 1991; Makino & Beamish, 1998; Makino & Neupert, 2000; Lu, 2002; Woodcock et al., 1994; Yamawaki, 1994).

Research Design

Our initial sample consisted of 940 Japanese companies, publicly listed on the Tokyo Stock Exchange as of the end of 1979, with their primary line of business in the manufacturing sector. The manufacturing industries represented in the sample are broad, including foods, textile products, chemicals, robber products, stone, clay & glass products, machinery, electric & electronic equipment, motor vehicles & auto parts,

transportation equipment, and precise equipment.

The subsequent two chapters focus respectively on entry and exit analysis of Japanese firms in China in the 1980 – 2000 period. Following conventional practice, the year in which Toyo Keizai firstly documented an investment is considered to be the year at which a subsidiary was established (Henisz & Delios, 2001). While the year in which Toyo Keizai delists the investment is considered to be the year at which this subsidiary exited (Yamawaki, 1991). After the 1940s and before 1980, when China had not officially opened its door to FDI, Japanese foreign direct investment in China is non-existent. In this sense, there is no 'left-censoring" problem in the entry and exit analysis.

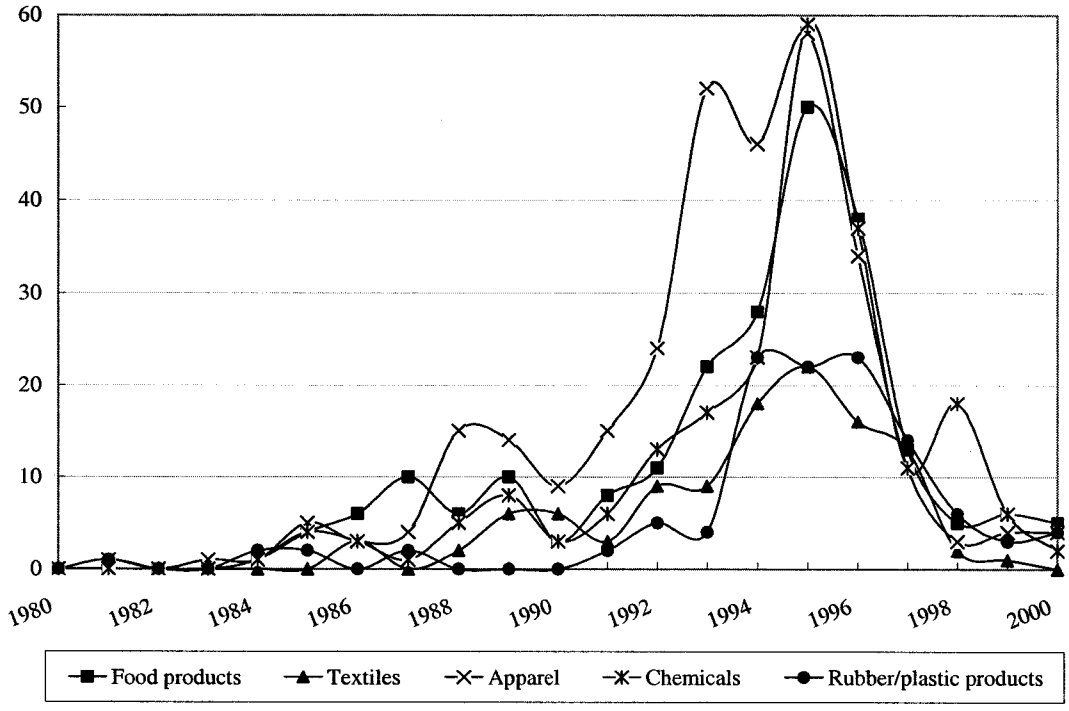
The sample for foreign entry analysis in Chapter 4 contains information on 857 Japanese subsidiaries in 10 industries in China during the study period. The entry rates of these Japanese subsidiaries by industry over years are presented in the two graphs in Figure 3-4. The sample for FDI exit analysis in Chapter 5 contains information on 138 subsidiary exits from China during the study period. The exit rates of these subsidiaries by industry over years are presented in two graphs in Figure 3-5.

For the entry analysis, I arranged the data set as a series of spells or durations for each combination of parent firm and its relevant industries. Spells start at 1980 or the year when the first Japanese venture established in the focal host market, which ever come later. Spells are then further split to account for the occurrence of an event (the establishment of Japanese subsidiaries in a specific industry) and at the end of each year. With spell splitting, I can accommodate the time-varying independent variables. Next, I model the foreign entry rates using a discrete-time hazard event history model. This approach is commonly used in settings that contain tied events, and can account for both the discrete nature of the available data and the continuous nature of the actual

entry process (Allison, 1995; Petersen, 1991). This model specification requires fewer assumptions about the temporal stability and lag structure of estimated covariates (Allison, 1982, 1984). I use logistic regression to estimate covariate effects on the likelihood that a firm-industry-year spell launches an entry in China. Yet, discrete-time event history analyses have been criticized for exaggerating a sample's information content and thus inflating the statistical significance of parameter estimates (Tuma & Hannan, 1984: 79-88). For this reason, I also estimate several continuous-time event history models, with the estimates are consistent with those from the discrete-time equation.

For exit analysis, I first take the base sample of all subsidiary entries by Japanese firms in China generated in the first study and track their histories in the host market up to year 2000 or the year when they exit, which ever comes early. The data set is then arranged as a series of spells to capture all subsidiary-years in which a subsidiary existed. Such a data structure allows us to consider time-varying covariates in our formulation. In each spell, a subsidiary is at risk for exiting, and until an exit occurs, the spell is treated as right centered (Baum & Korn, 1996). Similarly, I use both the discrete-time event history model and continuous-time event history model (e.g. the exponential transition rate model) to examine the transition rate from a state of entry in China to a state of exit.

FIGURE 3-4
Japanese Subsidiary Entries by Industry over Years



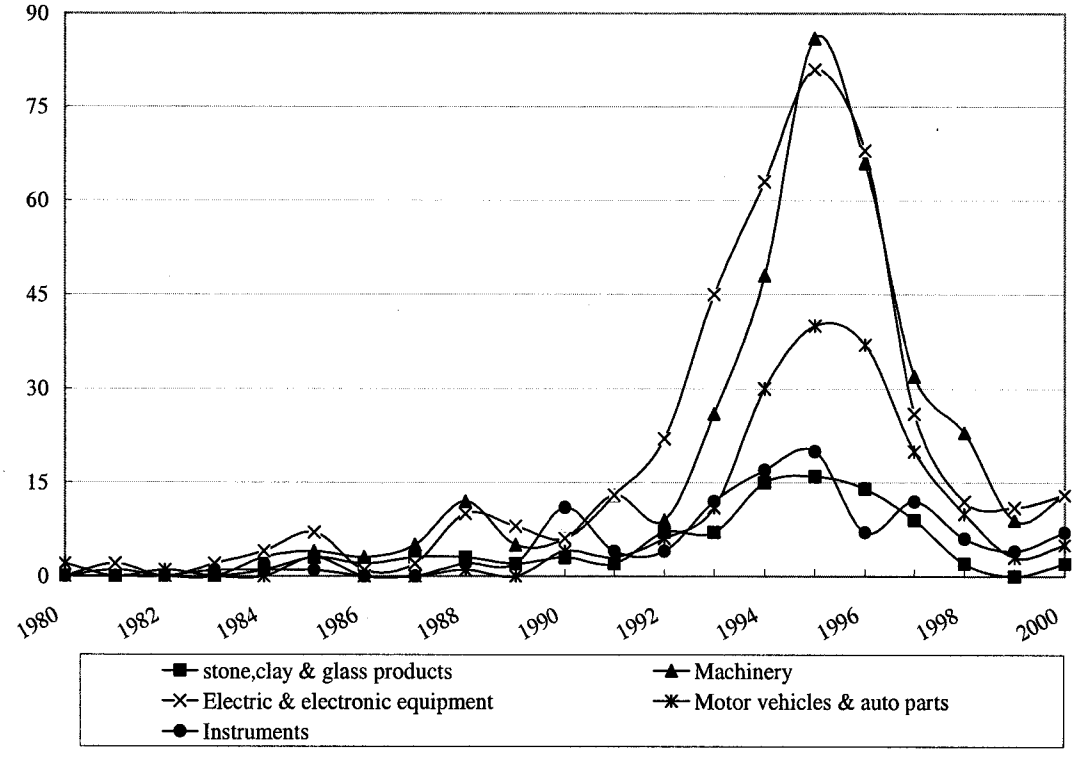
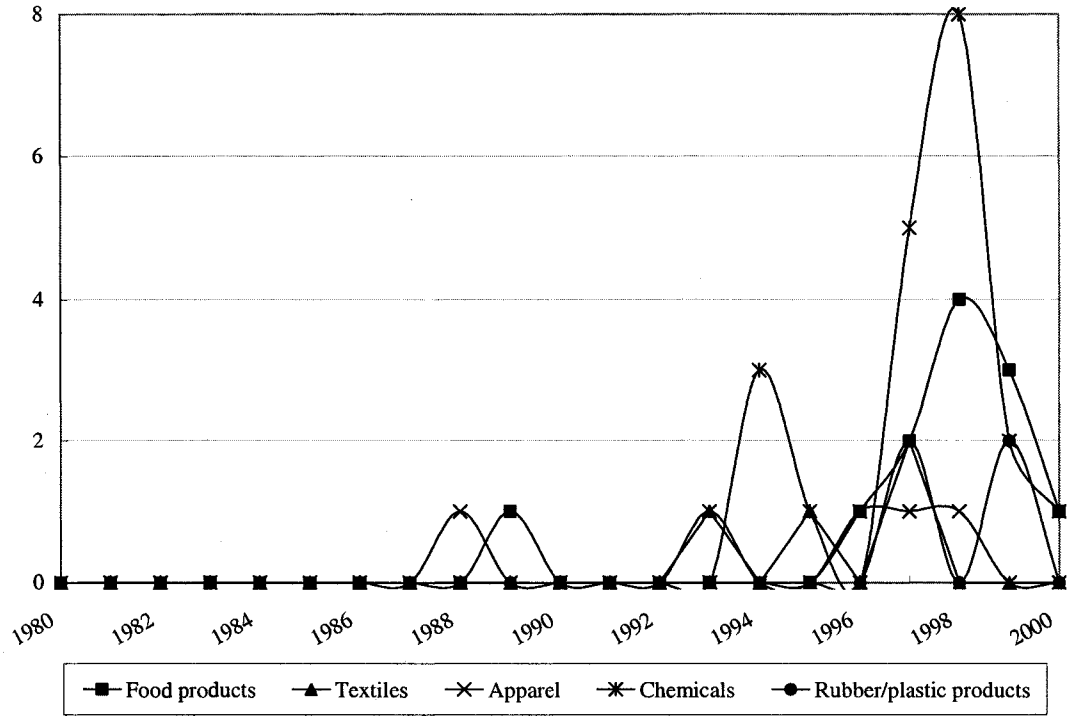
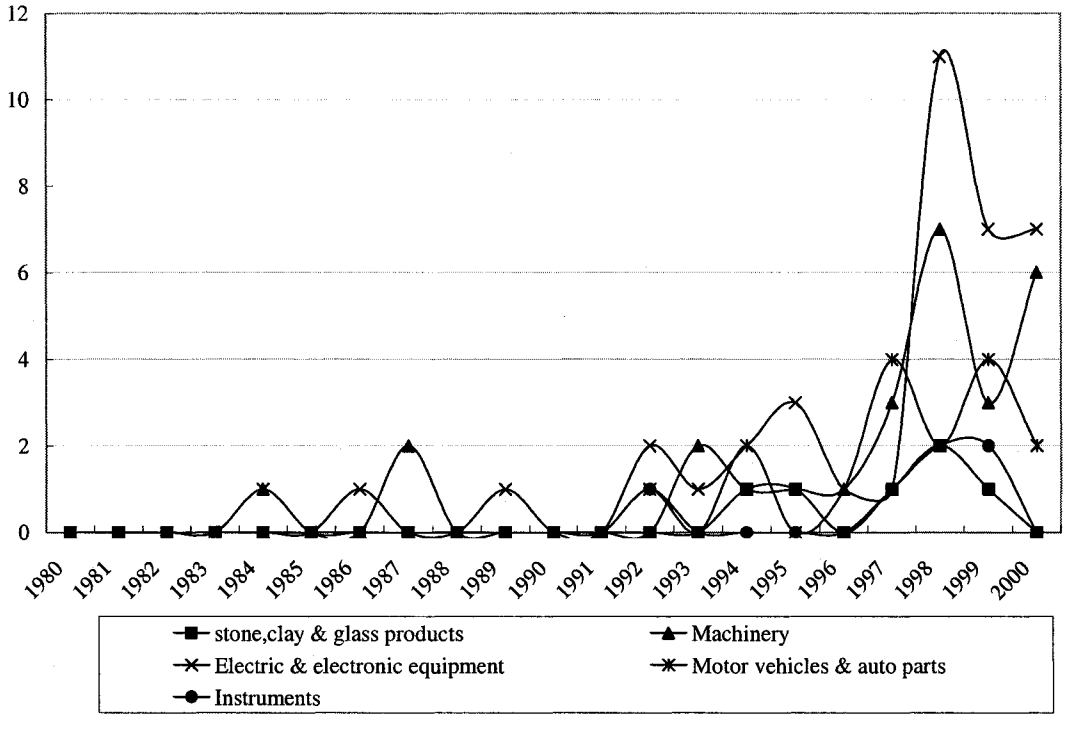


FIGURE 3-5
Japanese Subsidiary Exits by Industry over Years





CHAPTER 4
FAILURE-INDUCED LEARNING, UNCERTAINTY, AND FOREIGN MARKET ENTRY

4.1 Introduction

Organizational researchers have long recognized that firms adapt by observing and imitating others' strategies and practices (Argote, 1999; Cyert & March, 1992; Greve, 1996; Haunschild & Miner, 1997; Levitt & March, 1988; Miner & Haunschild, 1995). This process is founded on the idea that that firms gain information from others' experiences and revise their own activities based on these information cues (Chuang & Baum, 2003; Miner, et al., 1999; Shaver & Flyer, 2000). Among various learning mechanisms, mimetic learning is a selective process whereby organizations model their behaviors on others when the environment is uncertain (Miner & Haunschild, 1995). In a study of using investment bankers as advisors on acquisitions, Haunschild & Miner (1997) identified three modes of mimetic learning, frequency-, trait-, and outcome-based learning. The first two modes emphasize the impact of social considerations and the third one emphasizes the impact of technical factors.

In this chapter, I aim to investigate the relationship between uncertainty and firms' use of technical factors in their decision makings. The idea that uncertainty enhances the impact of social considerations in firms' decision making has been widely documented and generally supported in organization studies (e.g. Abrahamson & Rosenkopf, 1993; DiMaggio & Powell, 1983; Festinger, 1954; Haunchild & Miner, 1997; Henisz & Delios, 2001). However, scholars have inconsistent predictions and findings on how uncertainty affects a firm's decision making based on technical indicators (for details, see Haunschild & Miner, 1997, p.492). Careful research is

warranted to clarify the theoretical bases of uncertainty effects on technical imitation processes and to test the relationship using different types of outcomes and/or uncertainty indicators.

This study treats organizational failure, a salient and well-publicized outcome, as a technical indicator, and examines how different sources of uncertainty affect a firm's decision making based on this technical outcome. The extant research has largely focused on learning from apparently successful organizations (Burns & Wholley, 1993; Conell & Cohn, 1995; Miner et al., 1999). This line of research has been criticized for having a strong "success" bias which may lead to incomplete views about interorganizational learning processes (Denrell, 2003; Levinthal & March, 1993; Miner et al., 1999). Therefore, a study to examine the effect of peer firms' failures on a focal firm's decision making and how uncertainty plays its role in this process, could help counteract such a general tendency to study success (Miner et al., 1999).

This chapter thus has two basic objectives. First, I develop and test theory regarding a common but under-emphasized source of learning: negative outcomes of peer firms. Rather than as a contributor to firm outcomes, organizational failure has been treated by the extant literature as a performance outcome. Causal models predicted failure and how to avoid it, yet were rarely developed to examine how failure affects subsequent learning by peer firms (Miner, et al., 1999). Scholars have advocated for more studies considering prior failure as an independent variable and modeling its effects on organizational decision making processes as well as the consequences (Chuang & Baum, 2003; Kim & Miner, 2000; Miner et al., 1999). This study addresses this issue by examining the effects of failures in foreign direction investment (FDI), particularly those that are large, most recent, and by same-industry firms, on foreign

market entry patterns. I term this type of learning as "negative-outcome induced learning."

Second, I introduce a set of contingency factors, indicating different sources of uncertainty, to interact with this negative-outcome induced learning process. Learning theorists have suggested that interorganizational learning processes can be broken down to three pivotal components, including sender organizations, receiver organizations, and the relationship between them (Ingram, 2002). Keys to understanding the abstract interorganizational learning phenomena are to understand how the nature of sender organizations, receiver organizations, and the relationship between the sender organizations and receiver organizations affect the learning dynamics. I argue that the key learning components may capture different sources of uncertainty, and all of which I anticipate will affect the outcome-induced learning processes. For instance, one source of uncertainty could derive from the ambiguity of the outcome information provided by "sender" organizations that makes appraising the overall means-ends relationships difficult. Another source comes from receiver organizations' unfamiliarity with the host market. The third source can be captured by a firm's lack of social connections with sender organizations that may make the diffusion of valid experience unsuccessfully. Hence, this study focuses on different sources of uncertainty, reflected in different characteristics of pivotal components in learning, and examines how they moderate the relationship between prior FDI failures and foreign market entry strategy in the context of Japanese firms' investments in manufacturing industries in China.

Foreign expansion represents a form of organizational growth by establishing a new subsidiary for the purpose of manufacturing or providing service in a foreign country. Owing to a firm's limited knowledge in production and marketing capabilities in a new country, foreign expansion is an important strategic decision that entails

substantive resource constraints and informational challenges (Martin et al., 1998). Foreign entrants encounter numerous sources of uncertainty, as they emanate from the economic, cultural, and institutional difficulties in the host country. Prior work has emphasized how industry characteristics and national advantages can attract foreign investments (Buckley & Casson, 1976; Dunning, 1980, 1988; Hennart, 1982; Rugman, 1979, 1981). A firm's own resources and capabilities also spur foreign investment activity (Chang, 1995; Johanson & Vahlne, 1977).

Taking somewhat different track, I embrace an inter-organizational learning perspective here (Guillén, 2002, 2003; Henisz & Delios, 2001), to examine how firms learn from prior FDI failures in the host country when formulating their own foreign entry strategies. The FDI setting makes it possible to examine the moderating effects of different sources of uncertainty at both firm- and industry-level. This study highlights the effect of others' failures on a focal firm's decision making process, and key factors that moderate this negative-outcome induced learning process.

4.2 Theory and Hypotheses

4.2.1 Failure-induced Learning in Foreign Market Entry

Research in international management has suggested that firms not only learn from their own previous experiences (Barkema, Bell, & Pennings, 1996; Chang & Rosenzweig, 2001; Delios & Henisz, 2000; Johanson & Vahlne, 1977), but also learn from the experiences of other foreign entrants (Bastos & Greve, 2003; Henisz & Delios, 2001; Mitchell, Shaver, & Yeung, 1994; Shaver, Mitchell, & Yeung, 1997). These findings are consistent with the premises of organizational learning theorists that a firm is not only aware of important events of other firms in its field but also is likely to react to these events which contain valuable information (Huber, 1991; Levitt & March,

1988). Therefore, the market feedbacks and information spillovers from both successful and unsuccessful early foreign movers can be important sources of learning for later entrants.

How do potential foreign investors interpret and react to failures of prior entrants? Research in economics, organizational ecology, and organizational learning has suggested that failure affects the population evolutions directly, and also has direct impacts on individual firms' strategic behaviors. For instance, traditional economic theory sees firm failure as a way of eradicating inefficient organizations, which may change the nature of competition structure in the industry. Late movers can benefit from the spillovers from early movers' diverse experience as to formulate their own strategies (Ghemawat & Spence, 1985; Lieberman, 1987; Spence, 1984). Organizational ecologists argue that the prior failure is a result of environmental selection. Once the less fit organizations are selected out of the population, the average fitness and the selection threshold of the population should increase (Barnett, Swanson, & Sorenson, 2003; Sorenson, 2000), thus creating an intensified competitive environment for prospective entrepreneurs and investors whose niches overlap more heavily with incumbents in the market (Carroll, 1985; Sorenson, 2000). Organizational learning theorists introduce a concept of outcome-based learning and suggest that both positive and negative outcomes carry information for prospective learners (Haunschild & Miner, 1997: 478). Specifically, it suggests that firms pay attention to the performance outcomes of actions that others have undertaken and imitate only those that appear to produce positive outcomes and avoid those producing negative outcomes. Empirical evidence was found for both positive outcome-based learning (Conell & Cohn, 1995; Hanuschild & Miner, 1997) and negative outcome-based learning (Chuang & Baum, 2003).

In the context of foreign market entry, a large number of prior FDI failures in the host market eliminates inefficient entrants, improves the average fitness of the FDI population, and also revises competitive structure of the host market. Facing high competitive intensity or significant environmental changes in the host market, normally, potential foreign investors will be alerted and then reduce their foreign entry rates accordingly as to avoid the problematic actions by failed entrants. A negative relationship is thus expected between a firm's likelihood of launching a new entry in a market and the number of prior FDI failures in that market.

However, theories of bounded rationality and information search costs imply that organizations may focus their limited attention only on visible or salient outcomes (Arrow, 1974; March & Olsen, 1976; March, Sproull, & Tamuz, 1991). In this sense, the salience of prior failures is an important point to identify. Prior research has suggested some criteria for the salience of an outcome: the recency of failures, the status of failed firms, and whether failures were by firms from its reference groups (Baum, Li, & Usher, 2000; Haunschild & Miner, 1997; Lee & Pennings, 2002). In the foreign expansion setting, potential investors are likely to pay more attention to those FDI failures that are more recent, large (firms with status), and comparable (made by reference firms). Failures that have these characteristics are likely to be taken as negative signals regarding the host market environment, hence decreasing their likelihood of expansion into the foreign market.

Recency of failures. Because decision markers' attention and memory may decay over time (Argote et al., 1990; Tversky & Kahneman, 1974), events that happened more recently are likely to attract observers' attention and thus weight more in their decision making. Haunschild and Miner (1997: 482) adopted the recency

criterion in their study to measure outcome imitation in an investment banker setting and found that acquirers would like to use the investment bankers whose prior premiums were very low in prior three years. Baum, Li, and Usher (2000) also showed that vicarious learning processes lead chains to imitate location choices of other chains' most recent acquisitions. Applying this logic to the effect of FDI failure, I propose that:

> ***Hypothesis 1a* (H1a):** *A firm's likelihood of launching a new entry in a host market is negatively related to the recent failures of other FDIs in that market.*

Status of failures. Large firms, because of their perceived status and visibility, are more likely to be imitated by others. For instance, Burns and Wholey (1993) showed that hospitals would adopt matrix management structures when other large and prestigious hospitals have adopted them. Haveman (1993) found that whether a thrift enters a new market is affected by the establishments of large and successful thrifts already in that market. Haunschild & Miner (1997) demonstrated that acquiring firms tend to use same investment bankers which have been used by other large acquirers in the past. Following the logic, I expect failures of large foreign investments are more likely to be noted and, hence, deter observing firms' likelihood of market entry. In addition, observing firms are more likely to attribute failures of large entrants to the intensive competition and/or fundamental problems in the foreign operating environment, rather than the possibilities of ineffective execution of strategies by those large entrants. Therefore, I predict that:

> ***Hypothesis 1b* (H1b):** *A firm's likelihood of making a new entry in a host market is negatively related to the large failures of other FDIs in that market.*

Failures by reference group. Prior studies suggest that firms tend to identify a reference group of comparable organizations and model after their behaviors in similar situations (e.g. Fiegenbaum & Thomas, 1995; Lant & Baum, 1995). A focus on

attending to and imitating comparable organizations increases the potential relevance of the observed actions and experiences to observing firms. Industrial context, containing "pools of information about the characteristics and behaviors of firms", has been frequently regarded as a critical reference point (Fligstein, 1985; Haveman, 1993; Porac et al., 1995; Porac & Rosa, 1996). Firms in the same industry not only engage in "collective-sense making" (Porac & Rosa, 1996: 370-372) and tend to "characterize environments similarly" (Huff, 1982: 127; Reger & Huff, 1993), but also are more capable to evaluate each other's actions and performance (Henisz & Delios, 2001; Tolbert & Zucker, 1983). For the same reason, a foreign firm may consider other foreign firms from the same industry as a cognitively relevant identity group, and then is more likely to assess their operations in a new host market for guidance (Guillén, 2002; Henisz & Delios, 2001). I expect that foreign firms would be more likely to react to prior FDI failures by other foreign investors listed in the same industry at their home country. Hence, I hypothesize:

> ***Hypothesis 1c* (H1c):** *A firm's likelihood of launching a new entry in a host market is negatively related to the failures of other FDIs by same-industry firms in that market.*

4.2.2 The Moderating Effects of Uncertainty

Above predictions that FDI failures reduce a potential foreign investor's likelihood of launching new entries in the host market still leave a question of why salient FDI failures are not equally influential in reducing foreign investors' entry rates. I could imagine a situation in which all potential foreign investors stop launching new foreign entries into the host market right away after observing a large amount of FDI failures. Yet, a typical situation generally shows that this is not a real case and potential foreign investors react heterogeneously to their perceived FDI failures. The order of entry or non-entry in a host market has great significance for subsequent competition in

that market, and also very likely, affects the performance implications of the entry (Brewer, 1993; Pan, Li, & Tse, 1999).

One of the significant factors that account for heterogeneity of learning based on others' performance outcomes is uncertainty (Hanuschild & Miner, 1997). Uncertainty, generally defined as inability to predict or foresee (Dess & Beard, 1984), has been considered as an important factor in firms' mimetic learning processes (Festinger, 1954; Pfeffer, Salancik, & Leblebici, 1976; Rogers, 1995). Theories of outcome-based imitation rest on the premise that as long as there is some chance leading to decision maker believe that a practice produces positive or negative outcomes for others, it may be rational to imitate or avoid that practice (Campbell, 1965; Haunschild & Miner, 1997; Levitt & March, 1988; Miner & Hanuschild, 1995). Nevertheless, how can a firm be certain that the outcome is reliable or the practice producing the outcome will work in the same way for the second firm? And how are these associated with uncertainty?

Outcome imitation emphasizes learning based on technical criteria. In contrast to the general idea that uncertainty enhances social learning processes, uncertainty may present different patterns of influences on technical learning processes. Some scholars have suggested that organizations always prefer technical indicators, turning to social indicators only when technical information is unavailable or unreliable (Pfeffer, et al., 1976; Meyer, Scott, & Deal, 1983). Another possibility is that uncertainty increases the impact of social information, while also reducing the impact of technical information. In essence, the relative weights of social and technical indicators used in decision making change. Other scholars implied that uncertainty may amplify the importance of social indicators, without reducing the impact of technical indicators (Powell, 1991; Orru, Biggart, & Hamilton, 1991). A deep analysis of this literature suggests that

uncertainty has different sources. Once a source of uncertainty changes the perceived nature of technical indicators, it may affect subsequent learning processes based on these technical indicators; otherwise, it may only influence social learning processes, yet not necessarily affect technical learning processes. Learning theorists have suggested that keys to understand interorganizational learning processes, are to understand how the nature of three pivotal learning components, including sender organizations, receiver organizations, and the relationship between them, affects learning processes (Ingram, 2002). Take a step further, I argue that the characteristics of pivotal learning components reflect different sources of uncertainty that are likely to affect interorganizational learning based on technical outcomes.

Foremost, the outcome experience generated by sender organizations is usually ambiguous for receiver organizations to appraise the overall means-ends relationships. The more ambiguous the outcome experience, the higher the uncertainty that receiver organizations may perceive, and the less likely that they will count on the experience as guidance in their strategic actions. Another source of uncertainty derives from receiver organizations' lack of experience. Firms new to a practice are unlikely to have developed any structures or routines for analyzing the relevant information. One consequence of inexperience is that receiver organizations begin to rely more heavily on social cues to make decisions. Once receiver organizations have accumulated experienced, they tend to place greater reliance on technical criteria in decision making. Finally, firms are often embedded in social networks, which put them in a better position of frequent communication and information sharing. Social contacts between organizations act as both conduits and channels for diffusion of valid experience. In contrast to a firm unrelated to sender organizations, a firm having ties with sender organizations is able to easily access and precisely evaluate the overall outcome

experience. As a result, such social contacts will reduce the uncertainty of using outcome information as the technical criteria in their decision making. Among diverse characteristics of the three pivotal learning components, the causal ambiguity of FDI failures, the host country experience of potential foreign investors, and the connections between receiver and sender foreign firms are the foci of the current study. I extend the model of negative-outcome induced learning by stipulating that the main effect of FDI failures on foreign market entry is conditional upon the different sources of uncertainty which are associated with the nature of three pivotal learning components.

Causal ambiguity of FDI failures. Causal ambiguity indicates the degree to which that causes and effects for performance outcomes are not well understood (Levinthal & March, 1981; Lippman & Rumelt, 1982; Reed & DeFillippi, 1990). Uncertainty derived from the causal ambiguity of sender organizations' failure experience makes it difficult for receiver organizations to understand the reasons behind the failures in the host market. With increasing level of causal ambiguity, the value of learning from others' failures decreases. Say, if perceived outcomes are definite and reliable, firms can identify the causes leading to others' successes or failures more easily and accurately, and thus may be more likely to imitate or avoid the practices. Nevertheless, when the perceived outcomes are ambitious or unreliable, firms are likely to be confused about the right causes for successes or failures with some noisy and random factors. Firms thus require more time to analyze the situation, and prefer their *status quo*, i.e., "non-entry", rather than responding to ambiguous outcomes shortly. Therefore in our setting, as the level of causal ambiguity of FDI failures increase and the quality of the negative signals regarding the threats in the host market deteriorates, a firm employing outcome-based learning mode is more likely to entails

high search costs and experience errors (Lant & Mezias, 1990; March, 1988; Mezias & Lant, 1994). In this sense, technical indicators are likely to be considered as unreliable indicator of value and thus outcome learning will be slowed down.

Multiple factors have been hypothesized to affect the level of causal ambiguity pertaining to experience transfer and imitation, and complexity is one of such important factors (Simonin, 1999; Zander & Kogut, 1995). First, information complexity is one of the main determinants of learning needs which require different organizational learning styles (Duncan & Weiss, 1979). For example, simple and homogeneous information is likely to enhance a firm's tendency of using a simple learning style, such as mimicking; while complex and heterogeneous information may require a firm to implement complex learning policies (e.g. second-order learning or double-loop learning) (Argyris & Schön, 1978; DiBella, Nevis, & Gould, 1996). In addition, literature of learning from complexity (Beckman & Haunschild, 2002; Haunschild & Sullivan, 2002) suggests that simple and homogeneous experience is easier for potential investors to make sense and thus induce their learning than experience that is more heterogeneous and complex. Since complex experience makes it difficult for managers to discover clear cause-and-effect relationships between a focal practice and the possible outcomes of using the practice. Guided by these ideas, I expect if FDI failure experience is highly complex, there is greater difficulty for foreign investors to figure out why some firms fail but not the others. For instance, as more and more foreign entries with diverse structures and practices appear in the host country-industry, the underlying causes for FDI failures is becoming complicated, and will confuse potential investors and lead to their reluctance to react without careful considerations. Hence, I hypothesize that complexity will weaken the negative effect of FDI failures on potential investors' foreign entry rates that proposed in hypotheses one.

Hypothesis 2a (H2a): *Complexity weakens the negative relationship between firms' foreign entry rates and the recent failures of other FDIs in the host market.*

Hypothesis 2b (H2b): *Complexity weakens the negative relationship between firms' foreign entry rates and the large failures of other FDIs in the host market.*

Hypothesis 2c (H2c): *Complexity weakens the negative relationship between firms' foreign entry rates and the failures of FDIs by same-industry firms in the host market.*

Firm-level host-country experience. Firm-specific uncertainty can be captured by firm-level experience in the host country (Henisz & Delios, 2001). A number of studies in the international management literature have shown that foreign firms learn from their previous experience in a host country, and such experience often influences subsequent foreign entry decisions and improve their performance in the host country (Barkema et al., 1996; Chang, 1995; Kogut & Chang, 1996; Li, 1995; Pennings et al., 1994). A firm's direct experience in the host country yields substantive information about the country's culture, its common business practices, preferences of consumers, the process of policy-making, the preferences of key public and private actors, and the likelihood of policy change (Delios & Henisz, 2000; Chang & Rosenzweig, 2001). Beyond the direct influence, which I control for but do not make the subject of a hypothesis in this study, a firm's host-country experience may also affect its subsequent learning from the FDI experience provided by others.

Some international management scholars have found that firms lacking experience in the host country, indicating a higher level of firm-specific uncertainty, were more likely to refer to social indicators in their decision making, such as frequency, traits, and business group membership (Henisz & Delios, 2001; Guillén, 2002). This literature did not explain how such firm-level uncertainty affect firms' use of technical indicators in their decision making processes. Foreign firms new to a host

country are unlikely to have developed any structures or routines for analyzing the technical information available in the host country. Once having accumulated direct experience in the host country, foreign firms tend to look internally and draw from their own experience in investment decisions and also reduce their tendency to count on social cues to make decisions (Barkema et al., 1996; Henisz & Delios, 2001). I argue, beyond looking internally for solutions, experienced firms tend to place a greater reliance on technical criteria, i.e. a salient organizational outcome -- FDI failures, in their foreign expansion decisions.

Foreign investors with prior experience in the host country may have a general picture of the host country environment in their minds. In contrast to investors with no experience in or little awareness of the host country, experienced investors are more capable to make sense of FDI failures, and then likely to take reactions to this source of technical information. Inexperienced foreign investors may also receive some information about prior FDI failures in the host country through random observation, business press, and/or market analysts. Yet their understandings of the host country environment are limited which may have them blind to the received information or at least require more time analyzing the FDI failures before making any further actions. Following the logic, I expect that the negative effect of prior FDI failures in a host country on foreign market entry decision is stronger for firms experienced in that country than for firms inexperienced in that country. Therefore, I propose:

> **Hypothesis 3a (H3a)**: *The negative relationship between foreign entry rates and the recent failures of other FDIs is stronger for firms experienced in the host market than for firms inexperienced in that market.*
>
> **Hypothesis 3b (H3b)**: *The negative relationship between foreign entry rates and the large failures of other FDIs is stronger for firms experienced in the host market than for firms inexperienced in that market.*
>
> **Hypothesis 3c (H3c)**: *The negative relationship between foreign entry rates and the failures of FDIs by same-industry firms is stronger for firms experienced in*

the host market than for firms inexperienced in that market.

Network relationship between later and early foreign entrants. Prior literature has suggested that firms receive different information because of their different positions in social structures (Galaskiewicz & Burt, 1991; Greve, 1996). It has been noted that firms with networks are more likely to be the recipients of valid information and are bound to give more weight to the received information (Fligstein, 1991; Haunschild, 1993; Haunschild & Beckman, 2002; Mizruchi, 1993). Interfirm ties are emphasized here as to help foreign firms to get familiar with the host country's general environment and have some ideas about the opportunities and risks of operating in the foreign market.

I argue that foreign firms, lacking close ties with early entrants in the host country, will perceive a higher level of uncertainty in making investments in that country. While for foreign firms embedded in different types of interfirm networks, such as partnership and trade exchange, they can acquire a general picture of the host country and thus may perceive a lower level of uncertainty in making foreign entries in that country. Therefore, in contrast to investors having no ties with early entrants in the host country, investors with ties are more capable to make sense of FDI failures, and then likely to react to this source of technical information.

Among diverse influential interfirm ties, common corporate ownership is the focus of the current study. When two investors have once built joint ownership, there is a possibility of high communication between them (Greve, 1996). If one investor expanded to a foreign market, the other investor as a stranger to that market, in contrast to independent firms, can access the precious technical information in the new market through the first investor. Following the logic, I expect that the negative effect of prior

FDI failures in a host market on subsequent foreign entries will be stronger for foreign firms tied with other firms who have experience in the host market.

> **Hypothesis 4a (H4a)**: *The negative relationship between foreign entry rates and the recent failures of other FDIs is stronger for firms having joint ownership with other firms who have experience in the host country.*
>
> **Hypothesis 4b (H4b)**: *The negative relationship between foreign entry rates and the large failures of other FDIs is stronger for firms having joint ownership with other firms who have experience in the host country.*
>
> **Hypothesis 4c (H4c)**: *The negative relationship between foreign entry rates and the failures of FDIs by same-industry firms is stronger for firms having joint ownership other firms who have experience in the host country.*

Hypotheses 4 emphasize the role of interfirm ties in helping investors to get a general idea about the promises and risks in a foreign market, and to reduce their perceived uncertainty about investing in that foreign market. Conceptually, the learning mechanism emphasized here is a bit different from the mechanisms emphasized in conventional studies. For instance, some studies have suggested that firms tend to learn the direct experience of their tied firms (Davis & Greve, 1997; Greve, 1996; Haunschild, 1993, 1994; Guillén, 2002; Marsden & Friedkin, 1993), and others have shown that firms receiving more consistent information provided by their networks and the general environment, will be more likely to take reactions (Coleman, Katz, & Menzel, 1966; Rogers & Kincaid, 1981). Here, I extend the two formulations by suggesting that interfirm ties may facilitate outcome-based learning regardless of the direct experience (positive vs. negative) generated by the network or the consistence of information provide by the network and the general host country environment.

4.3 Methods

4.3.1 Sample and Data Sources

The hypotheses were tested by examining market entries of Japanese

multinationals in the manufacturing sector in China in the 1980-2000 period. There are several reasons why China is an excellent setting for testing above ideas. First, China is one of the most important manufacturing locations in the world, and Japan is one of the largest investors in China. Our data cover Japanese firms' foreign direct investment from the beginning of China's economic transition, making accurate estimation of prior FDI failures possible. Second, China's institutional context during the study period is widely considered to be complex and highly uncertain (Child, 1994). In the face of high uncertainty, learning from others' outcome experience becomes important since it helps to economize on search costs (Cyert & March, 1963; Guillén, 2002; Scott, 2002). Finally, using Japanese investment in China allows us to compare our findings with existing studies (Guillén, 2002; Henisz & Delios, 2001), and expand organization theories into the international context.

Our sample consisted of 940 Japanese companies, publicly listed on the Tokyo Stock Exchange as of the end of 1979, with their primary line of business in the manufacturing sector. The manufacturing industries represented in the sample are broad, including foods, textile products, chemicals, robber products, stone, clay & glass products, machinery, electric & electronic equipment, motor vehicles & auto parts, transportation equipment, and precise equipment. Three hundred and sixty-five (365) firms made a total of eight hundred and fifty-seven (857) investments in China during the study period and one hundred of seventy-seven (177) of these firms made multiple investments among which ninety-seven (97) firms entered into multiple industries.

I obtained Japanese parent firm information from the Nikkei NEEDS tapes. This source provides comprehensive annual data on Japanese listed firms' financial, accounting, business information, and demographic information (e.g. date of founding, firm size). For entries into China I developed the data using each annual edition of

Toyo Keizai's annual survey of Japanese firms' overseas operations from 1980 to 2001. Following conventional practice, the year in which Toyo Keizai firstly documented an investment was considered to be the year at which a subsidiary was established.

In the next section, I first introduce how I coded the theoretical variables of interests, including prior failures of Japanese entrants by industry (adjusted by time, size, and group reference respectively), complexity of FDI failures, firm-level host-country experience, and an indicator for a firm's joint ownership with FDI investors. I then elaborate the firm-level characteristics to be controlled into the analysis and how I matched with other data sources to add in industry-level and host country-level data information.

4.3.2 Measure and Analysis

Our dependent variable in this study, the decision by a Japanese firm *x* regarding an entry decision in China into a relevant industry *i* in period *t*, is captured by a dummy variable *FDI (xit)*. It equals to 1 if firm *x* invests in industry *i* at time *t*, and 0 otherwise. An industry was defined as relevant for a firm *x* when it falls into the following three situations: 1) the listed industry of firm *x*; 2) industries where firm *x* has ever invested before in other countries; and 3) diversified industries where firm *x* is going to invest given our study period. Our sample includes a total of 25,636 observations of firm-industry-year. This number is the product of the 940 listed parent firms by 20 years and by the number of relevant industries, less those industry-years prior to the founding of the first Japanese entry in that industry.

Prior FDI failures. I defined Japanese prior FDI failures in industry *i* for firm *x* at time *t* as:

$$= \sum_{t_{i\,found}}^{t} \sum_{y=1}^{N_{it}} (\text{Failure}_{yit} \times \text{Weight}) \qquad t = t_{i\,found} \ldots t_{x\,found-1}$$

Where $t_{i\,found}$ is the first year that a Japanese entry established in the ith industry in China, $t_{xfound\text{-}1}$ is the year before firm x's entry; N_{it} is the count of all Japanese FDIs operated in industry i at year t; $Failure_{yit}$ is a dummy variable with "1" indicating that prior FDI y in industry i fails at time t and "0" indicating that FDI y survives. *Weight* is the weighting factor used to reflect firms' learning heuristics based on time, size, and relevance. To account for these heuristics, three sets of weight indicators were specified. First, the weight was set to the inverse of square root of the duration in years between the current year (t) and the year of FDI y's exit. The earlier the FDI failure, the lower the weighted effect of this FDI failure to our dependent variable (Ingram & Baum, 1997). Second, I set the weight equal to the investment size of FDI y. Here, size of FDI was measured as the amount of registered capital. The larger the FDI failure, the stronger the effect of this failure is expected. Finally, I set the weight as a binary indicator which equals to "1" when FDI y is launched by firms that listed in the same industry on the Tokyo Stock Exchange with the focal firm x. This is to account for the effect of learning heuristics based on relevance (e.g. Henisz & Delios, 2001). Using above formula and different weight indicators, I constructed three sets of failure effects for testing hypotheses one: *time-adjusted FDI failure* (H1a), *size-weighted FDI failure* (H1b), and *FDI failure by same-industry firms* (H1c).

FDI complexity. I measure FDI complexity by looking at the diversity of different strategies and/or structures used by all Japanese entrants in a single industry in China over the study period. This study only focused on one important strategic dimension that foreign investors have to consider when deciding to launch foreign entries, i.e. entry mode. There were totally four types of entry modes (n=4) employed by Japanese ventures in our sample, i.e. wholly-owned subsidiary, joint venture, acquisition, and capital investment. I then employed entropy-based index to proxy

complexity, which is a typical approach to measure diversity and heterogeneity with categorical variables (Ancona & Caldwell, 1992; Jehn, Northcraft & Neale, 1999; Teachman, 1980). The entropy index is calculated as follows:

$$H(_{it}) = - \Sigma[P_{ijt}(lnP_{ijt})], \qquad for\ j=1...n$$

Where P_{ijt} is a ratio of the number of Japanese entries using a specific entry mode j over the total number of Japanese entries in China in industry i at time period t. The higher score on this index indicates a greater heterogeneity of prior foreign entries in terms of their entry modes, suggesting a higher complexity of prior FDI experience. I have also created alternative proxies to measure complexity. FDI experience can be viewed as more complex as the average range of FDI businesses or the variance of entrants' investment size (Anderson & Tushman, 2001; Dess & Beard, 1984) increase. The analysis results based on the two alternative measures for complexity are basically consistent with the findings reported here.

Firm-level host-country experience. I measure a foreign firm's experience in the host country at time t by taking natural logarithm of the number of the firm's prior entries in the host country other than the target industry i. Studies of organizational momentum suggest that firms may become bound up in their past experience with a certain strategy or practice, leading to different levels of inertia for organizational change (Amburgey & Miner, 1992; Mitchell et al., 1994). Following momentum logic, experienced firms may be trapped in their own accumulated experience and less likely to respond to external information. Therefore, a firm with exclusive target industry experience in the host country may have more complex interactions in their technical learning processes than what I discussed here. In the interest of simplicity, this study focuses on the effects of a firm's *host-country experience* by excluding its prior entries

in the target industry. I have also created a dummy variable for the firm's host-country experience (coded as 0 before the first entry in any industry *j* other the target industry in the host country and as 1 thereafter). The two variables are highly correlated with each other and yield similar analysis results. We have also tested the effect of a broadly defined firm-level host-country experience (without deducting the firm's target industry experience) on the relationship between FDI failures and foreign entry rates. Results are consistent with the findings reported here.

Joint ownership with early FDI investors. I create an indicator variable to reflect whether a foreign firm had any joint ventures with other foreign firms who had investments in China before. I first identified who was holding joint ownership with firm *x* up to time *t*, and then further checked whether any of them has ever invested in *i*th industry in China before year *t*. Then, a dummy variable was developed, with "1" indicating that a firm has "joint ownership with prior FDI investors in China in industry *i* at time *t*". Two implications of this measurement should be noted. First, I did not measure this variable by counting the total number of joint investors with host country experience, which is in line with our purpose to show that holding social contacts *per se* is important regardless of how much experience transferred through the social contacts. Second, I did not consider indirect social contacts, not because indirect ties are not interesting, but because considering indirect ties will complicate the measures in the current context.

Firm-level control variables. Following conventional practice (Delios & Beamish, 1999; Epple, Argote, & Devadas, 1991; Guillén, 2002), I included two other types of firm-level experiences. A Japanese firm's *host country-industry experience* was measured as a dummy variable, with "1" indicating that the firm has prior entries in China in the target industry, and "0" otherwise. A Japanese firm's *international industry*

experience was computed as the logarithm of the total number of prior entries in the target industry but in other host countries. Other variables associated with firm-level capabilities and resources, such as firm age, size, asset specificity, and diversification, were all included in the analyses of this study. Firm age was measured as the number of years since a parent firm's founding (e.g. Guillén, 2002). Firm size was measured as the logarithm of the firm's annual sales which may yield a positive effect on firms' foreign entry rates (e.g. Guillén, 2002; Henisz & Delios, 2001). The possession of intangible assets has traditionally been assumed to provide advantage for a firm to compete in a new market (Caves, 1971). To account for this effect, I controlled for a parent firm's research and development (R&D) intensity as well as advertising intensity. I expect to observe that parent firms with higher levels of R&D intensity or advertising intensity could have a higher probability of launching foreign entries. Some Japanese firms in our sample made entries in different industries in China, while other firms did not. I hence created a diversification index to control for this firm-level difference using an entropy measure (e.g. Delios & Beamish, 1999). Finally, two dummy variables were included in all models to indicate parent firms' affiliations with two types of business groups: horizontal and vertical keiretsu (Henisz & Delios 2001). Horizontal keiretsu are business alliances in which member firms are integrated by such mechanisms as cross-appointments of directors and executives, cross-share-holdings, and joint projects. Member firms may gain information about foreign markets through ongoing trading relationships, personnel exchanges from one keiretsu company to another, and collaborative projects (Helou, 1991). Vertical keiretsu indicates that firms exist in a distinct hierarchy of buyer-supplier relationships. Member firms of buyers are likely to follow suppliers to enter a foreign market (Martin et al, 1998).

Environmental control variables. The host country's economic, institutional,

and industry characteristics are also important for foreign entries. To account for the density dependence hypothesis in organizational founding theory (Hannan & Freeman, 1987, 1989; Hannan & Carroll, 1992), I controlled the number of surviving Japanese subsidiaries for each industry and their square terms in all models. I also included the total number of domestic firms in the same industry as well as its square term in the analysis, which allowed us to control for the potential interactions between foreign and domestic firms over the study period. The host country's annual industry growth rate was also included to reflect industry attractiveness, and was expected to have a positive effect on firms' foreign expansion rates. I obtained industry growth data from *China Statistical Yearbook*. To control for the political disturbance of 1989 in China, I created a period dummy for year 1989-90 (coded as "1" for these two years and "0" for other years), which might have a negative effect on firms' foreign expansion rates.

4.3.3 Final sample and Estimation model

I treated the entry rates of Japanese firms in China as a repeated hazard. The data set was thus arranged as a series of annual spells for each combination of parent firm and its relevant industries. Spells started at 1980 or the year when the first Japanese venture was established in the focal industry. Spells were then further split to account for the occurrence of an event (the establishment of Japanese venture in a specific industry) and at the end of each year which were designed to accommodate the time-varying independent variables.

First two years of observations for each firm-industry pair lost due to using the entropy measure to code complexity. Also, I lost one year of observations for each firm-industry pair, since all independent and control variables in our models had a one-year lag. The final sample for the analysis was thus reduced to 839 parents, of

which 322 established a total of 672 subsidiaries in China by the end of 2000. The number of spells for finally analysis was 11,480.

I modeled the foreign entry rates using a discrete-time hazard event history model with a complementary loglog function. It is an approach commonly used in settings that contain tied events, and can account for both the discrete nature of the available data and the continuous nature of the actual entry process (Allison, 1995; Petersen, 1991). I employed a LOGIT procedure in STATA and had adjusted standard errors for within firm clustering as our primary statistical approach. In addition, I estimated two extra continuous-time event history models, i.e. the COX model and exponential transition rate model. The estimates from these approaches are consistent with those from the comparable discrete-time equation. Therefore, I focus on the discrete-time results below.

4.4 Results

Table 4-1 provides the sample summary statistics for the main variables included in the study. Table 4-2 shows the correlations between pairs of all variables. The results of the discrete logit analysis are presented in Table 4-3. This table reports the coefficient estimates and significance tests for twelve model specifications, adding the theoretical variables of interest sequentially. Models 1 through 3 included the main effects of prior FDI failures adjusted by the three weighting indicators, time (*w1*), size (*w2*), and reference group (*w3*). Model 4, 5 and 6 added two interactions between each of the adjusted FDI failures and FDI complexity as well as firm-level host country experience. Models 7 through 9 showed interactions between the three respective FDI failures and the indicator variable for a firm's joint ownership with FDI investors in the host market. Finally, models 10 through 12 included all main effects and interactions.

The Chi-square change statistics at the bottom of Table 4-3 showed that the addition of our FDI failure variables and the interaction terms significantly improved the model fit, across the various specifications..

TABLE 4-1: Summary Statistics for Variables Included in Econometric Analysis

Variables	Mean	s.d.
FDI entry (=1)	0.06	0.23
Time-adjusted FDI failures *(w1)*	8.91	10.90
Size-weighted FDI failures/10^8 *(w2)*	2.71	2.95
FDI failures by same-industry firms *(w3)*	2.52	4.42
FDI complexity	0.66	0.13
Firm-level host-country experience	1.19	4.02
Joint ownership with FDI investors *(0/1)*	0.26	0.44
Country-industry experience *(0/1)*	0.22	0.42
International industry experience	0.68	0.89
Firm age/10^3	0.05	0.02
Ln (Firm size)	10.96	1.53
Advertising intensity	0.01	0.01
R&D intensity	0.02	0.02
Firm product diversity	0.58	0.16
Vertical group affiliation	0.10	0.30
Horizontal group affiliation	0.16	0.37
Japanese FDI density/10	13.64	10.54
Local density	2.19	1.42
Local industry growth	1.72	1.55
Period dummy (*89-90*)	0.11	0.31

TABLE 4-2: Correlation Matrix for Variables Included in Econometric Analysis [a]

Variables	1	2	3	4	5	6	7	8	9	10	11
1 FDI entry	-										
2 Time-adjusted FDI failures *(w1)*	-0.06	-									
3 Size-weighted FDI failures/10^8 *(w2)*	-0.03	0.80	-								
4 FDI failures by same-industry firms*(w3)*	0.00	0.64	0.63	-							
5 FDI complexity	0.05	0.07	0.32	0.22	-						
6 Firm-level host-country experience	0.15	0.17	0.18	0.15	0.04	-					
7 Joint ownership with FDI investors*(0/1)*	0.16	0.15	0.09	0.08	-0.05	0.27	-				
8 Host-country experience	0.13	0.22	0.19	0.15	0.03	0.40	0.30	-			
9 International industry experience	0.35	0.06	0.09	0.18	0.12	0.32	0.33	0.41	-		
10 Firm age/10^3	0.05	0.16	0.05	0.02	-0.18	0.14	0.17	0.12	0.08	-	
11 Firm size *(ln)*	0.23	0.03	0.09	0.04	0.18	0.41	0.42	0.34	0.58	0.16	-
12 Advertising intensity	0.05	0.03	0.01	0.00	-0.04	0.05	0.05	0.11	0.10	-0.01	0.13
13 R&D intensity	0.11	0.02	0.03	0.08	0.07	0.21	0.10	0.17	0.27	0.07	0.30
14 Firm product diversity	0.05	0.00	-0.02	0.00	0.01	0.10	0.10	0.08	0.12	0.03	0.18
15 Vertical group affiliation	0.07	0.00	0.06	0.04	0.15	0.15	0.09	0.10	0.17	-0.02	0.27
16 Horizontal group affiliation	0.06	0.00	-0.01	0.00	0.01	0.09	0.21	0.10	0.16	0.12	0.25
17 Japanese FDI density/10	0.00	0.69	0.73	0.58	0.14	0.21	0.17	0.25	0.07	0.16	0.03
18 Japanese FDI density ^{2}/100	-0.03	0.69	0.74	0.59	0.17	0.20	0.13	0.21	0.05	0.12	0.02
19 Local density	0.02	-0.30	-0.30	-0.29	-0.17	-0.01	-0.10	-0.04	-0.04	-0.04	-0.09
20 Local density ^{2}/100	0.02	-0.27	-0.27	-0.26	-0.11	0.00	-0.10	-0.04	-0.04	-0.07	-0.08
21 Local industry growth	0.07	-0.30	-0.16	-0.05	0.20	-0.08	-0.01	-0.13	0.01	-0.09	0.05
22 Period dummy *(89-90)*	-0.07	-0.23	-0.19	-0.18	-0.16	-0.09	-0.10	-0.15	-0.06	-0.13	-0.05

Variables	12	13	14	15	16	17	18	19	20	21
13 R&D intensity	0.11	-								
14 Firm product diversity	-0.04	0.09	-							
15 Vertical group affiliation	-0.03	0.11	-0.04	-						
16 Horizontal group affiliation	0.02	0.15	0.07	0.16	-					
17 Japanese FDI density/10	-0.02	0.03	-0.01	0.01	0.00	-				
18 Japanese FDI density ^{2}/100	-0.05	0.02	-0.01	0.02	0.00	0.97	-			
19 Local density	0.00	-0.04	-0.02	-0.08	-0.01	-0.07	-0.08	-		
20 Local density ^{2}/100	-0.01	-0.02	-0.01	-0.06	0.00	-0.06	-0.07	0.99	-	
21 Local industry growth	-0.02	0.00	0.00	0.05	-0.01	-0.23	-0.23	-0.15	-0.15	-
22 Period dummy *(89-90)*	-0.03	-0.02	-0.01	0.01	-0.01	-0.35	-0.28	0.05	0.07	0.06

[a]: Correlation coefficients greater than .02 are significant at the 5 percent level.

TABLE 4-3: Entry Rate of Japanese Manufacturing Firms in China, 1980-2000 [a]

Variables [b]		M1 *W1 : time*	M2 *W2: size*	M3 *W3: reference*	M4 *W1 : time*	M5 *W2: size*	M6 *W3: reference*
Prior FDI failures [c]	H1(-)	-0.06 *** (0.01)	-0.14 *** (0.04)	-0.07 *** (0.02)	-0.49 *** (0.07)	-1.17 *** (0.24)	-1.06 *** (0.18)
FDI complexity x Prior FDI failures	H2(+)				0.65 *** (0.11)	1.54 *** (0.33)	1.39 *** (0.24)
Firm-level host-country experience x Prior FDI failures	H3(-)				-0.05 ** (0.02)	-0.01 *** (0.00)	-0.03 *** (0.01)
Joint ownership with FDI investors *(0/1)* x Prior FDI failures	H4(-)						
FDI complexity		0.82 (0.57)	1.79 ** (0.66)	1.31 * (0.62)	-1.19 * (0.59)	0.44 (0.64)	0.33 (0.57)
Firm-level host country exp.		0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.08 ** (0.03)	0.07 *** (0.02)	0.04 *** (0.01)
Joint ownership with FDI investors *(0/1)*		0.40 *** (0.12)	0.33 ** (0.12)	0.35 ** (0.13)	0.41 *** (0.12)	0.47 *** (0.13)	0.48 *** (0.13)
Firm-level controls							
Host country-industry experience		-0.35 ** (0.14)	-0.38 ** (0.14)	-0.40 ** (0.14)	-0.38 ** (0.14)	-0.39 ** (0.14)	-0.43 *** (0.14)
International-industry experience		1.28 *** (0.07)	1.28 *** (0.07)	1.33 *** (0.07)	1.31 *** (0.07)	1.30 *** (0.07)	1.35 *** (0.07)
Firm age		2.84 (2.96)	1.15 (2.97)	0.31 (3.08)	3.69 (3.00)	1.70 (2.94)	0.05 (3.12)
Firm size		0.01 (0.05)	0.02 (0.05)	0.00 (0.05)	0.00 (0.05)	0.00 (0.05)	0.01 (0.05)
Advertising intensity		3.92 (2.90)	2.56 (3.13)	0.99 (3.26)	4.04 (2.96)	3.78 (3.13)	1.84 (3.11)
R&D intensity		1.03 (1.79)	0.98 (1.79)	1.71 (1.80)	0.54 (1.84)	0.76 (1.82)	0.61 (1.83)
Firm product diversity		0.11 (0.36)	0.10 (0.37)	0.10 (0.37)	0.09 (0.36)	0.03 (0.36)	0.03 (0.37)
Vertical group affiliation		-0.05 (0.15)	-0.01 (0.15)	0.01 (0.16)	-0.08 (0.15)	-0.03 (0.15)	-0.01 (0.16)
Horizontal group affiliation		-0.02 (0.12)	0.00 (0.13)	-0.01 (0.13)	-0.03 (0.13)	-0.03 (0.13)	-0.03 (0.13)
Environmental controls							
Japanese FDI density		0.19 *** (0.03)	0.19 *** (0.03)	0.18 *** (0.03)	0.21 *** (0.03)	0.18 *** (0.03)	0.18 *** (0.03)
Japanese FDI density ^{2}		-0.54 *** (0.08)	-0.56 *** (0.08)	-0.55 *** (0.08)	-0.66 *** (0.08)	-0.57 *** (0.08)	-0.58 *** (0.07)
Local density		0.33 (0.28)	0.64 ** (0.25)	0.53 * (0.24)	0.36 (0.30)	0.75 ** (0.27)	0.41 (0.26)
Local density ^{2}		-4.14 (4.90)	-9.03 * (4.59)	-6.84 (4.39)	-4.89 (5.39)	10.42 * (4.88)	-4.56 (4.66)
Local industry growth		0.07 * (0.03)	0.12 *** (0.03)	0.14 *** (0.03)	0.05 (0.03)	0.08 * (0.04)	0.08 ** (0.03)
Period dummy (89-90)		-1.30 *** (0.38)	-1.13 *** (0.38)	-1.26 *** (0.38)	-1.36 *** (0.38)	-1.23 *** (0.39)	-1.31 *** (0.39)
Intercept		-6.54 *** (0.78)	-7.70 *** (0.83)	-7.17 *** (0.79)	-5.06 *** (0.75)	-6.74 *** (0.78)	-6.25 *** (0.77)
Log likelihood (*df*)		-1,844.02 (19)	-1,864.42 (19)	-1,866.19 (19)	-1,811.23 (21)	-1,843.56 (21)	-1,839.56 (21)
Δ Chi-square change (*df*)		59.96(1)***	19.16(1)***	15.62(1)***	65.58(2)***	41.72(2)***	53.26(2)***
Baseline model		Control	Control	Control	M1	M2	M3

[a]: N=11,480; Parameter estimates are shown, with standard errors in parentheses; 839 parent firms; 672 entries.
[b]: The log likelihood for the control model with only control variables is 1874.00.
[c]: *W* is the weighting indicator used to compute three types of prior FDI failures: time-adjusted FDI failure, size-weighted FDI failure, and FDI failure by same-industry firms.
† p<0.10; * p<0.05; ** p<0.01; *** p<.001.

TABLE 4-3 (continued).

Variables [b]		M7 *W1 : time*		M8 *W2: size*		M9 *W3: reference*		M10 *W1 : time*		M11 *W2: size*		M12 *W3: reference*	
Prior FDI failures [c]	H1(-)	-0.03 **	(0.01)	-0.05	(0.04)	-0.03	(0.03)	-0.45 ***	(0.08)	-1.10 ***	(0.25)	-1.05 ***	(0.19)
FDI complexity x Prior FDI failures	H2(+)							0.62 ***	(0.11)	1.51 ***	(0.34)	1.38 ***	(0.24)
Firm-level host-country experience x Prior FDI failures	H3(-)							-0.04 *	(0.02)	-0.01 ***	(0.00)	-0.03 **	(0.01)
Joint ownership with FDI investors*(0/1)* x Prior FDI failures	H4(-)	-0.06 ***	(0.02)	-0.16 ***	(0.05)	-0.60 †	(0.34)	-0.03 †	(0.02)	-0.11 *	(0.05)	-0.08	(0.30)
FDI complexity		0.86	(0.56)	1.67 **	(0.65)	1.27 *	(0.61)	-1.04 †	(0.60)	0.44	(0.63)	0.33	(0.57)
Firm-level host country exp.		0.02 *	(0.01)	0.02 †	(0.01)	0.02 †	(0.01)	0.07 **	(0.03)	0.06 ***	(0.02)	0.04 ***	(0.01)
Joint ownership with FDI investors *(0/1)*		0.78 ***	(0.17)	0.72 ***	(0.18)	0.50 ***	(0.16)	0.60 ***	(0.16)	0.73 ***	(0.18)	0.50 ***	(0.15)
Firm-level controls													
Host country-industry experience		-0.37 **	(0.14)	-0.39 **	(0.14)	-0.41 ***	(0.14)	-0.38 **	(0.14)	-0.39 **	(0.14)	-0.43 ***	(0.14)
International-industry experience		1.30 ***	(0.07)	1.30 ***	(0.07)	1.34 ***	(0.07)	1.32 ***	(0.07)	1.31 ***	(0.07)	1.35 ***	(0.07)
Firm age		2.73	(2.96)	1.73	(2.99)	0.45	(3.13)	3.71	(3.00)	2.05	(2.95)	0.07	(3.12)
Firm size		0.01	(0.05)	0.01	(0.05)	0.00	(0.05)	-0.01	(0.05)	0.00	(0.05)	0.00	(0.05)
Advertising intensity		3.57	(2.85)	2.54	(3.06)	1.13	(3.31)	3.98	(2.91)	3.81	(3.06)	1.85	(3.12)
R&D intensity		1.07	(1.80)	1.25	(1.81)	1.77	(1.82)	0.66	(1.83)	0.97	(1.83)	0.63	(1.84)
Firm product diversity		0.07	(0.36)	0.08	(0.37)	0.08	(0.37)	0.08	(0.36)	0.02	(0.36)	0.02	(0.37)
Vertical group affiliation		-0.08	(0.15)	-0.02	(0.15)	0.00	(0.16)	-0.10	(0.16)	-0.05	(0.15)	-0.01	(0.16)
Horizontal group affiliation		-0.02	(0.13)	-0.01	(0.13)	0.00	(0.13)	-0.03	(0.13)	-0.03	(0.13)	-0.03	(0.13)
Environmental controls													
Japanese FDI density		0.19 ***	(0.03)	0.18 ***	(0.03)	0.18 ***	(0.03)	0.21 ***	(0.03)	0.18 ***	(0.03)	0.18 ***	(0.03)
Japanese FDI density ^{2}		-0.55 ***	(0.08)	-0.55 ***	(0.08)	-0.55 ***	(0.08)	-0.66 ***	(0.08)	-0.57 ***	(0.08)	-0.58 ***	(0.08)
Local density		0.26	(0.27)	0.64 **	(0.25)	0.52 *	(0.25)	0.33	(0.30)	0.76 **	(0.27)	0.41	(0.26)
Local density ^{2}		-2.91	(4.88)	-8.75 *	(4.55)	-6.51	(4.40)	-4.36	(5.38)	-10.46 *	(4.84)	-4.54	(4.66)
Local industry growth		0.07 *	(0.03)	0.11 ***	(0.03)	0.14 ***	(0.03)	0.05	(0.03)	0.08 *	(0.03)	0.08 *	(0.03)
Period dummy (89-90)		-1.29 ***	(0.39)	-1.15 ***	(0.38)	-1.26 ***	(0.39)	-1.35 ***	(0.38)	-1.23 ***	(0.39)	-1.31 ***	(0.39)
Intercept		-6.51 ***	(0.77)	-7.64 ***	(0.83)	-7.07 ***	(0.80)	-5.15 ***	(0.75)	-6.80 ***	(0.78)	-6.24 ***	(0.78)
Log likelihood		-1,834.22 (20)		-1,857.43 (20)		-1,863.74 (20)		-1,808.71 (22)		-1,840.32 (22)		-1,839.52 (22)	
Δ Chi-square change (*df*)		19.60(1)***		13.98(1)***		4.90(1)*		70.62(3)***		48.20(3)***		53.34(3)***	
Baseline model		M1		M2		M3		M1		M2		M3	

[a]: N=11,480; Parameter estimates are shown, with standard errors in parentheses; 839 parent firms; 672 entries.

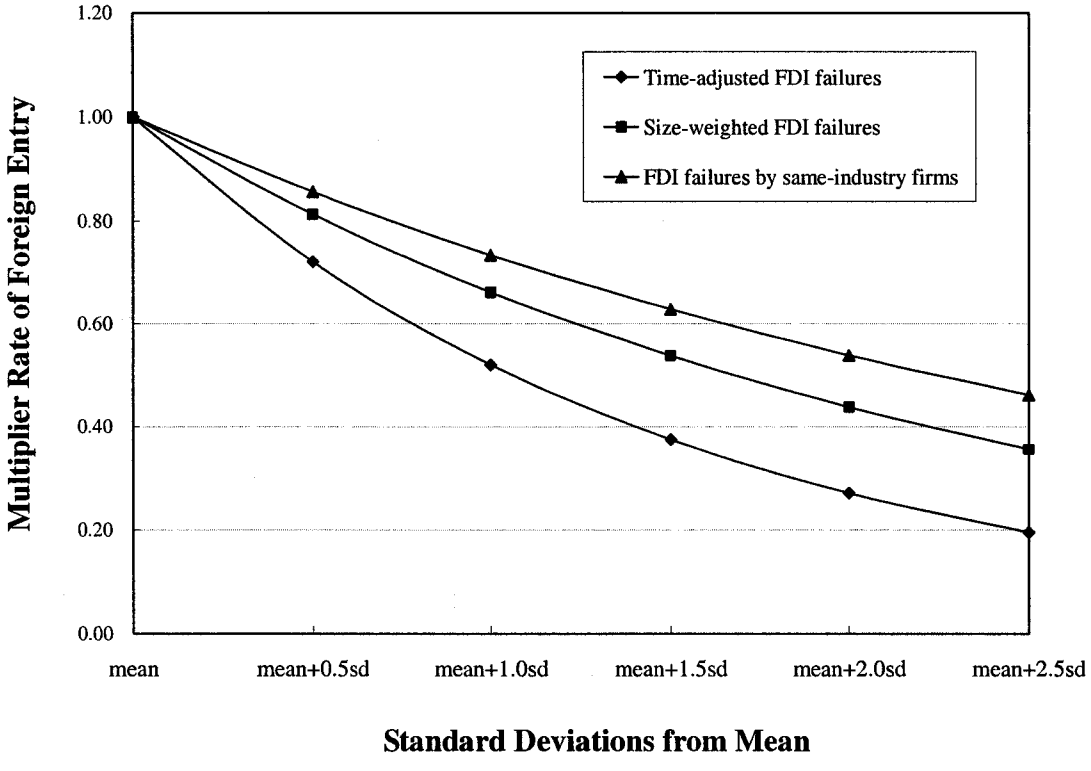
[b]: The chi-square for the model with only control variables is 1874.00.

[c]: *W* is the weighting indicator used to compute three types of prior FDI failures: time-adjusted FDI failure, size-weighted FDI failure, and FDI failure by same-industry firms.

† p<0.10; * p<0.05; ** p<0.01; *** p<.001.

Hypotheses 1, predicting that firms' foreign entry rates are negatively related to prior FDI failures in a particular market, received strong support across all models, except models 8 and 9. In these two models, the main effects (FDI failures) regained the significance after adding in the interaction term. I then centered the main effects prior to calculating the interaction, a procedure suggested by Cronbach (1987) and Jaccard, Turrisi, and Wan (1990). After using this centering procedure, the coefficients and significance of the interaction terms did not change, but the main effects regained their significance. The significant and negative coefficients of time-adjusted and size-weighted FDI failures as well as FDI failures by firms listed in the same industry suggested that, firms will slow down their foreign entry decisions when observing a large number of failures by prior entrants, especially the salient failures. Thus, Hypothesis 1a, 1b, and 1c are strongly supported. Figure 1 plots these main effects of prior failures adjusted by the three weight factors (*w1, w2, and w3*). It illustrates that when *time-adjusted FDI failure*, *size-weighted FDI failure*, and *FDI failure by same-industry firms* increase by one standard deviation from their means, the multiplier rates of a firm's foreign entry rate are reduced by 48, 34, and 27 percent, respectively.

FIGURE 4-1[a]
Main Effects of FDI Failures and Foreign Entry Rates



[a] Multiplier rates were computed using significant coefficient estimates from models 1 to 3 of Table 3.

The tests for hypotheses 2, 3 and 4, examining the conditional effects of the three key learning components on the relationship proposed in hypotheses 1, are presented in models 4 to 12. Each interaction term between FDI complexity and FDI failures was positive and significant in models 4 to 6 and models 10 to 12. Therefore, hypotheses 2 (2a, 2b, and 2c), predicting that complexity reduces the negative effect of FDI failures on firms' foreign entry decisions, received strong and consistent support. Each interaction term between firm-level host-country experience and FDI failures presented in the models (4-6 and 10-12) was negative and significant. Hypotheses 3 (3a, 3b, and 3c),

predicting that the negative relationship between entry rates and FDI failures is stronger for firms experienced in the host market, also received full support.

However, in models 7 to 12, the results for interaction terms between the indicator variable for a firm's joint ownership with early FDI investors and FDI failures are mixed. The interaction effect for this indicator and time-adjusted FDI failures was negative and significant in model 8, but lose its significance in model 10 when the two other interaction terms included. Thus, hypothesis 4a was supported partially. As the interaction terms between the social contact indicator and FDI failures by same industry firms were not significant in models 9 and 12, hypothesis 4c was rejected. The interaction effect for this indicator and size-weighted FDI failures was negative and significant in both models 8 and 11. Hence hypothesis 4b, predicting that the negative relationship between foreign entry rates and the size-weighted FDI failures is stronger for firms having joint ownership with early investors in the host market, was supported.

I suggest that the mixed findings for hypotheses 4 could be for the following reasons. First, it is likely that other moderating effects of FDI complexity and/or firm-level host-country experience confound the moderating effects of a firm's social contact with sender organizations in full models. Second, it is also possible that our operationalization of a firm's social contact – joint ownership with early FDI investors – is an endogenous variable related to firm-specific characteristics. Then, there is a concern for multicolinearity that may lead to the insignificance of the interaction term. Lastly, networks between organizations, such as join ownership between investors, may involve complex learning mechanisms than a relative simple one as I predicted here. Therefore, future study is needed to clarify this issue.

The first moderator, FDI complexity, generally presented positive effects on

foreign entry rates. The coefficients for firm-level host-country experience were positive but not significant. While the indicator about a firm's joint ownership with early FDI investors in the host country, consistently produces positive and significant effects on foreign entry rates in all models. Among other firm-level control variables, only the two firm-level experience counters were significant in our models The coefficient estimates on *international-industry experience* were positive and significant across models, which indicates that a firm holding more of this type of experiences will be more likely to launch foreign entries. However, the negative and significant coefficients on *host country-industry experience* suggest that a firm may use up its resources in prior investments and thus less likely to invest in the same business field. Turning to the environmental control variables, density of Japanese FDI by industry had an expected inverted U-shape relationship with foreign entry rates. Similarly, some of the models showed a non-monotonic effect of local firm density on foreign entry rates. The positive and significant coefficients on local industry sales growth imply that Japanese firms were attracted to enter high-growth industries in China. Finally, the indicator for the political disturbance of 1989 in China, dummy for year 1989-90, was negative and significant in our models.

4.5 Discussion and Conclusions

The key findings indicate that firms are less likely to enter a foreign market when observing a large number of failures by peer firms. However, this negative effect is stronger when the causal ambiguity of technical information is low, or for foreign investors experienced in the host market, or as joint ownership exists between potential foreign investors and early FDI investors in the host market. This study provides

evidence for the failure-induced learning process as an explanation for firms' foreign market entries, and also extends this negative outcome-based learning framework by introducing some important contingency factors, i.e. causal ambiguity, firm-level experience, and ownership connections between organizations.

I began by explicating that FDI failure is a negative outcome of prior entrants in the host country, and serves as important technical information for potential investors to consider when making investment decisions. To account for the effect of outcome salience, I investigated three important criteria indicating different aspects of salience of prior failures, i.e. the recency of failures, the status of failed firms, and whether failures were by firms from its reference groups. Our findings corroborate theories about outcome-based learning, and suggest that a large number of failures in the host market with the characteristics of salience, signaling a pernicious market environment for foreign entrants, reduce potential foreign investors' tendency to enter this market.

One important goal of this study is to empirically investigate the relationship between uncertainty and outcome-based learning. Outcome information released by early FDIs may usually embody some noise or random elements in the cause-effect relationships. Also, foreign firms may vary in their firm-specific uncertainty about investment decisions, and differ in their social structures with peer investors. These characteristics of learning components indicate different sources of uncertainty about foreign market entry. I focused on these characteristics, specifically FDI complexity, firm-level host-country experience and joint ownership between potential foreign investors and experienced investors, and examined how they moderate the relationship between prior FDI failures and foreign market entry decisions.

Our results showed that all of the characteristics of pivotal learning components

affect failure-induced learning to different degrees. First, ambiguous outcome information makes it difficult for firms to evaluate the worthiness of peer firms' performance outcomes or regard them as reliable technical indicators to make decisions. Our analysis fully supported this idea and show that uncertainty derived from complexity of FDIs attenuates foreign firms' likelihood of reacting to prior FDI failures by reducing their entry rates in the same market. Second, our empirical findings demonstrated that a firm with host-country experience is more likely to reduce its foreign entry rates when observing a large number of FDI failures in the host market. I argue that foreign firms with experience in the host market have a general knowledge of the host country environment, and are more capable to make sense of FDI failures and react to this source of technical information. While, inexperienced firms, owing to their limited knowledge about the host country environment, are likely to be blind to or at least require longer time to analyze the technical information of FDI failures before making any investment decisions. Third, foreign firms with social contacts with early FDI investors in the host market, are able to acquire valid information through their experienced social contacts, and thus may perceive a lower level uncertainty of making investments in the host market. However, our empirical analysis provided partial support for this argument. Future research is clearly needed to clarify the effects of uncertainty associated with interfirm relationships on outcome-based learning processes. Previous findings and theories of uncertainty on outcome-based learning are limited (Haunschild & Miner, 1997; Ingram, 2002; Mezias & Eisner, 1999). This study then acts a primary response to a call for more studies incorporating uncertainty into theories of interorganizational learning and clarifying the theoretical bases of uncertainty effects on technical imitation processes (Haunschild & Miner, 1997; Ingram, 2002).

The implications of the research presented here are important. First, I investigate a very important but largely neglected source of outcome information in organizational learning – peer failures. Investigating the effect of peer failures on a firm's decision making processes, this study links the outcome-based learning literature (Haunschild & Miner, 1997) with the emerging body of work of learning from failure (Chaung & Baum, 2003; Miner et al., 1999). Second, this study illuminates the importance of characteristics of key learning components in failure-induced learning processes. Previous studies failed to demonstrate that uncertainty reduces the impact of technical considerations in organizational learning. This study not only provides strong evidence showing that different sources of uncertainty derived from these key learning components influence firms' technical learning processes, but also develops theories to clarify the uncertainty effect. It also corroborates with Haunschild and Miner's (1997) suggestion that that different types of uncertainty may have asymmetrical impacts on different learning modes. Given the findings, scholars should be specific when talking about the relationship between uncertainty and mimetic learning.

Limitations in this study also provide several suggestions for future research. First, owing to firm-level heterogeneities, organizations may react to peers' failures in different ways, including avoiding, reinforcement of existing routines, and experiment with new routines (Miner et al., 1999). This study only focused on firms' avoiding (i.e., non-entry) as a direct response to peers' failures. Future research is needed to explore other organizational responses, such as exploration and innovation in new businesses or new host markets, and how causal ambiguity might affect such explorative responses. Population learning theorists have raised a puzzle about mimetic learning (Miner et al., 1999): if firms repeatedly imitate others' successfully strategy yet avoiding failures'

strategy, one might expect all firms in the same field to become homogeneous in their routines, strategies, and practices. Exploring the distribution of firms' exploration for new routines, exploitation of current routines, and simple avoiding actions may help illuminate part of this puzzle.

Previous work in organizational learning can be classified according to whether its primary focus is on learning as an outcome or learning as a process (learning quality). Some researchers study learning as an outcome, one that can be seen as improvement in organization routines and performance (e.g., Ingram & Baum, 1997; Baum & Ingram, 1998; Kim & Miner, 2000). Learning from others, often presented at the population and community level, has been shown to have important effects on varied organizational outcomes, for instance, increasing manufacturing plant productivity (e.g., Argote, Beckman, & Epple, 1990), enhancing hotel survival (Baum & Ingram, 1998; Ingram & Baum, 1997) and bank survival (Kim & Miner, 2000). Our study considered learning as a process. A practical concern on this outcome-based learning mechanism is whether it can lead organizations to adopt or avoid practices effectively (Greve, 1995). Hence, future research is needed to investigate the performance outcome (e.g. survival rate) of a firm's learning induced by peers' failures, and how causal ambiguity plays the role in that relationship.

Previous studies provided some evidence that learning from the failure experience of others may be more fruitful than learning from others' success (Ingram & Baum, 1997). It was suggested when learning from others' success, firms often apply a simple learning rule, and copy the exact practices from the successful firms without taking much effort to detect the underlying causal processes (Beckman & Haunschild, 2002; Kim &

Miner, 2000). Comparing the effectiveness of learning from failures versus successes should be an interesting topic for future research.

This study links characteristics of key learning components to different types of uncertainty. Learning components usually possess multiple characteristics, among which some may affect outcome learning, while others may not. The primary objective of this study is to identify uncertainties that have impacts on the negative outcome-based learning rather than those have no influence. Focusing on uncertainties which are influential allows us to compare our findings with previous studies and to extend existing theories of uncertainty in outcome learning. Future research could study other features of learning components, including both influential and uninfluential ones on outcome learning.

Our operationalzations of theoretical variables are somewhat specific to our research context. However, the theoretical arguments are applicable to other empirical settings. The theoretical formulations and findings reported here may inform future research aimed at replicating or refining the findings in different national or industry contexts. Also, the theoretical framework of this study – uncertainty derived form key learning components and outcome learning – can be applied to a number of other organization decisions other than foreign market entry, such as adoption of new technology, entry mode choices, and location strategy.

CHAPTER 5
CONGENITAL FAILURE-INDUCED LEARNING AND SURVIVAL OF FOREIGN MARKET ENTRY

5.1 Introduction

Theorists suggested that organizations learn from the experience of others before they were founded, a form of learning defined as "congenital learning" (Baum & Ingram, 1998; Huber, 1991; Ingram & Baum, 1997). However, evidence on the effectiveness of congenital learning is not extensive and subject to different types of experience or contexts (Argote et al., 1990; Baum & Ingram, 1998; Ingram & Baum, 1997). Parallel research interest has been found in international management studies. For instance, several previous studies in this literature have related FDI performance to foreign presence before the FDI was established in the host market, and suggested that early foreign entrants operating in a host country generate knowledge spillovers that have potential value for later entrants (Mitchell, Shaver, & Yeung, 1994; Shaver, Mitchell, & Yeung, 1997). They provided some indirect tests showing that, subject to some contingencies, foreign investments are more likely to survive the greater the knowledge spillovers from early foreign entrants in the host market at the time of investment (Mascarenhas, 1992; Mitchell, 1991; Mitchell et al., 1994, 1997).

Experience spillover from operating organizations is not the only source for interorganizational learning. Recently, learning theorists have emphasized the impact of other important sources of experience that have been previously overlooked (Ingram, 2002). Organizational failure is one of such an important source of learning, offering

different information cues for surviving organizations (Ingram & Baum, 1997; Kim & Miner, 2000; Miner et al., 1999). Firms tend to apply a simple mimicry rule in learning from the success of others. In contrast, when confronted with the failure experiences of others, firms may engage in different inferential reasoning, and generate more fruitful results (Miner et al., 1999; Sitkin, 1992).

A primary objective of this chapter is to follow this trend and explore the importance of failure experience-based congenital learning in an international context. Chapter 4 has examined how early FDI failures in a host market affect subsequent foreign entries in that market. This Chapter 5 further investigates how the survival rates of these foreign entries are influenced by the same source of FDI failures before the time of their entries. Previous international management studies have related foreign direct investment survival with the presence of foreign businesses alive at entry time (Mitchell et al., 1992, 1993, 1994). Yet the foreign presence at entry time could be an indicator for both knowledge spillover and competition effects (Mitchell et al., 1994). The empirical tests of these studies thus often hinted at the prediction, which stems from the tension between opportunities for later entrants to learn from the surviving entrants and a growing competition as more surviving entrants prevail in the market at the time of entry (Glazer, 1985; Hymer, 1976; Lambkin, 1988; Lieberman & Montgomery, 1988; Mitchell, 1991; Mitchell et al., 1992, 1993). In this chapter, I focus on the experience spillovers from historical failure experience of early foreign entrants and represent it as a discounted sum of the number of FDI failures in the host market before entry. Although FDI failures in the past may yield "wasted investments" in that these investments are no longer appropriable by the failed subsidiaries, the value of these investments can be captured by new entrants through spillovers (Kim & Miner, 2000; Ingram & Baum, 1997; Miner et al.,

1999). In contrast to survivor foreign subsidiaries operating in the market, failed foreign investments, withdrawing from host market competition, are no longer competitors for later foreign entrants. Therefore, these FDI failures create an important source of experience spillover that may induce a congenital learning of later entrants, yet do not cause growing competition in the market.

Another objective of this study is to identify a set of contingency factors that are likely to modify the outcome implication of congenital learning from prior FDI failures. Different types of experience require different learning mechanisms (Ingram, 2002). Examining foreign-entry failure experience in this study, is not just a matter of making new recognitions as to what it is, but more importantly is to discover how learning from it can benefit other organizations and under what conditions. Some learning theorists have suggested that learning from failure is not easy since it is hard for managers to make good inferences as to guide future actions (Miner et al., 1999). Other theorists have suggested that interorganizational learning process can be broken down to three pivotal components, including the sender organizations, the receiver organizations, and the relationship between them (Ingram, 2002). It has been stressed that the key to understand the abstract interorganizational learning phenomenon is to understand how the nature of these pivotal components affects learning processes. I argue that a firm's congenital learning based on prior FDI failures embodies the same three learning components and the nature of these components will affect how the firm make inferences, and in turn, its performance outcomes. Thus, it is important to identify the characteristics of pivotal components in learning, and demonstrate how these characteristics moderate the impact of the early FDI failure experience on a foreign entrant's survival prospect.

Finally, this study considers the entry probability of foreign direct investments when testing above ideas. Firms do not make foreign entry decisions randomly, but are likely to consider important factors before making these strategic decisions (Buckley & Casson, 1976; Chang, 1995; Dunning, 1988; Hennart, 1982; Guillén, 2002; Henisz & Delios, 2001). These factors may select out a certain type of entries (e.g. large or competitive) more than other entry types (e.g. small or noncompetitive), and thus construct a nonrandom sample for examining the causal relationship between interorganizational learning and entry survival. This may introduce a sample selection bias (Berk, 1983; Heckman, 1976, 1979; Goldberger, 1981). Previous empirical models that did not account for this entry-selection bias might be potentially misspecified and the estimates might be biased. To address this concern, I will incorporate the entry probabilities of foreign direct investments, obtained based on the model estimates in Chapter 4, into the FDI survival function of the current study.

Foreign expansion represents a form of organizational growth by establishing a new subsidiary for the purpose of manufacturing or providing service in a foreign country. Compared with indigenous firms, foreign subsidiaries are less familiar with the local input markets, distribution systems, consumer tastes and habits, and legal and regulatory environments. Therefore, a foreign investor's own experience in the host market and the experience generated from other foreign firms in the market are particularly important in terms of improving the survival chances of its foreign direct investments (Johanson & Vahlne, 1977; Li, 1995; Mitchell et al., 1994; Newbould, Buckley, & Thurwell, 1978). In this study, rather than emphasizing the importance of learning from firms' own experience, I investigate how experience of other foreign entrants, congenital failure experience in particular, affects the survival chance of later foreign direct investments. In

addition, this study highlights several key contingency factors that moderate this process, and controls for the potential self-selection bias in the survival function of FDIs. I address the issues in the context of Japanese firms' investments in manufacturing industries in China.

5.2 Theory and Hypotheses

Organizations are not founded as clean states with respect to knowledge, but are greatly influenced by the specific knowledge imparted by the organization's creators as well as the prevailing knowledge generated by other organizations in the society (Boeker, 1989; Hannan & Freeman, 1984; Huber, 1991; Meyer & Rowan, 1977; Stinchcombe, 1965). Huber (1991) refers to the knowledge inherited and acquired prior to an organization's birth as congenital knowledge, and describes a form of 'congenital learning' that involves grafting, searching, and utilizing the congenital knowledge. Congenital learning is important to an organization's success since "what organizations knows at its birth, will determine what it searches for, what it experiences, and how it interprets what it encounters" (Huber, 1991: 91). Cyert, Kumar and Williams (1993) presented a learning model and showed that differences in the starting models held by new organizations can result in sustained differences in their future performance.

In addition, the importance of congenital learning comes from the structural inertia of organizations after founding or in the later sage of their life-histories. Although organizations, during their lifetime, can continuously access to the newly generated knowledge of their environment, they were unable to take full advantage of such knowledge when doing so requires major organizational change (Baum & Ingram, 1998). Theory of structural inertia contends that major changes during organizational lifetime is

difficult, risky, and infrequent (Amburgey, Kelly, & Barnett, 1993; Hannan & Freeman, 1984). Therefore, absorbing the knowledge generated by other organizations occurs primarily at the time of founding or very early in the life-histories of organizations; and organizations may remain firmly imprinted with the knowledge all along their late lifetime. For instance, Argote *et al.* (1990) found that shipyards were more influenced by the productive experience of other shipyards at the time of their entry than at later points in their histories. Ingram and Baum (1997) found that industry experience at the time of founding lowered the U.S. hotel chains' failure rates more than the industry experience accumulated after chains were founded.

Applying the idea in the international context, I argue, although a foreign subsidiary itself did not exist in the host market before its entry to observe the experience of early entrants, its parent firm and initial participants did. They will bring knowledge spillovers from early entrants' experience to the fledgling subsidiary, through mimetic and contact learning, or more directly, for example, redeploying or hiring away core employees from early investments. Further, previous foreign entrants' knowledge can also be stored in books, journal and newspaper articles, as well as other repositories where the new entrants can access it. Much of this knowledge generated by early foreign entrants is nonappropriable and can be digested and used by later entrants, such as knowledge of product-market segmentation, suppliers, plant locations, productivity and characteristics of the workforce, marketing practices, distribution systems, and regulatory practices in the host market. Therefore, previous foreign entrants' experiences may provide both blueprints and roadmaps of pitfalls for later foreign investors, leading them to make appropriate arrangements in sourcing, production, marketing, organizational, and other activities for founding a new subsidiary. For instance, Mitchell et al. (1994) found

that foreign entrants into U.S. medical sector markets benefited in the form of a lower failure rate from the experience of previous foreign entrants before the time of entry.

An organization's congenital knowledge is a combination of the knowledge inherited and acquired from different sources before its birth, which embody both failure experience and success experience (e.g. Ingram & Baum, 1997). Different types of experiences may require different learning mechanisms and contribute for different elements of organizational performance (Ingram & Baum, 1997; Ingram, 2002). When learning from others' success, firms often apply a simple copying rule and attempt to imitate the exact strategy of the successful firms (Sitkin, 1992; Miner et al., 1999). In contrast, learning from failure may require firms engaging in different inferential reasoning, and increase the level of search and experimentations. Learning theorists have suggested that failure-induced learning could generate fruitful results (Miner et al., 1999).

In the following sections, I first propose hypotheses regarding the main effects of congenital failure experience on the survival chance of later FDIs. In addition, I highlight several key contingency factors and depict that how they moderate the main effects of this congenital failure-induced learning. Lastly, I introduce the self-selection effect of foreign investors in the survival function of FDIs, and speculate its effect on FDI survival.

5.2.1 Congenital Learning from FDI Failures

Research in international management has suggested that owing to the inherently high cost and liability of operating in a foreign market (Zaheer, 1995), firms may often make mistakes in the process of foreign expansion, sometimes incurring nontrivial errors that cause irreversible damages. In contrast to local players, foreign firms are less

familiar with the host country environments, including the industry opportunities and risks, local suppliers, distribution systems, consumer tastes and habits, and legal and regulatory institutions. Foreign firms may make irreversible mistakes in sourcing, choosing production sites, selection distribution approaches, and making logistic decisions that limit sales opportunities or incur unduly heavy operating costs, taxes, and regulatory burdens. Clearly, damaging and costly mistakes may lead to the dissolution of the foreign business, which is in general considered as a serious failure of managements' original aims for this foreign investment (Bane & Neubauer, 1998).

Although FDI failures may yield "wasted investments" in that these investments are no longer appropriable by the failed subsidiaries, the valuable experience of these investments can be learned by parent firms and other foreign investors when launching new entries. In contrast to survivor foreign subsidiaries present in the market, failed foreign investments in the past are no longer trying to protect a competitive future. They thus create an important source of valid experience for other organizations, yet do not cause growing competition in the market. In addition, organizational failures in many cases are salient and well-publicized events (Ingram & Baum, 1997; Miner et al., 1999). Managers naturally attend to failures which usually provide rich information that matters for competition strategy. For organizations aim to actually learn from others (as opposed to merely mimic others), observation of outcomes is necessary (Foster & Rosenzweig, 1995).

Prior research suggested several ways in which failure experience may produce the "survival-enhancing learning", of which congenital learning from others' failure experiences is one (Baum & Ingram, 1998). For instance, foreign firms can identify and avoid the mistakes and poor management practices taken by failed subsidiaries, which

could be an effective learning strategy for enhancing the survival chance of their later entrants. Also observing FDI failures of others may prompt foreign firms to scan their contexts for threats and search for solutions to resist the threats. Furthermore, valid inferences drawn from FDI failure experience are likely to uncover the causal processes that could be used to guide future action and strategies.

Some learning theorists have suggested that learning from the failure experience of others can be more fruitful than learning from others' success (Miner, et al., 1999). When learning from success, organizations may simply copy the successful routine without rigorous search for new, perhaps better routines. Such simple imitation may destroy the value of the routine that is imitated because the outcome of such imitation is contingent on the revised local context after collective imitation (Mezias & Lant, 1994; Anderson & Lawless, 1995). In contrast, when learning from failure, firms are normally encouraged to search for causal factors leading to the failure and to allocate more resources to exploring new opportunities and solutions. Such explorative search may increase the likelihood of discovering new successful routines, which will benefit the population as a whole (Miner, et al., 1999). Combining these arguments, I expect that later foreign entrants, inheriting the stock of knowledge gained from the failure experience of early FDIs, should start with a higher chance of survival.

> ***Hypothesis 1* (H1):** *A foreign subsidiary's survival rate is positively related to the failures by other FDIs in the host market before the time of its entry.*

5.2.2 Moderating Effects of Pivotal Learning Components

While early FDI failures offer the potential for later foreign entrants' learning and enhance their survival chances, it may not be always beneficial or equally beneficial to every other later entrant. Learning theorists have suggested that owing to the inconclusive

systematic research on other organizations, learning from others' failure experience is generally difficult (see details in Miner et al., 1999: 209-211). They further suggested that the outcomes of failure-induced learning depend on whether "appropriate" inferences can be made from others' failures and what are the possible problems in making the inferences.

In a review paper, Ingram (2002) pointed out that interorganizational learning process composes three pivotal components -- sender organizations, receiver organizations, and the relationship between sender and receiver organizations, and that the key to understanding the abstract learning phenomenon is to understand how the nature of these pivotal components affects the learning process. The similar three pivotal learning components are also included in congenital learning processes. I argue that the nature of pivotal components in congenital learning may affect firms' inference making about prior FDI failures, and then induce firms' search, experimentation, and other learning actions, which in turn I anticipate will lead to their improved firms' performance. The characteristics of pivotal learning components identified and examined in the current study are the ambiguity of failure experience generated by early foreign entrants, later foreign entrants' characteristic regarding their firm-level host-country experience, and the network relationships between later and early foreign entrants. I then extend our main hypothesis of failure-induced survival-enhancing learning by stipulating that the relationship between a foreign entrant's survival and the experience spillovers from early FDI failures at the time of its entry is conditional upon these identified characteristics of pivotal components.

Ambiguity of FDI failure experience. The experience generated by other organizations is likely to be tacit and far more ideal for causal inferences (Brehmer, 1980; Dawes, 1988; Einhorn & Hogarth, 1978; Szulanski, 1996). The links between actions and outcomes are often ambiguous and impose great information gathering and processing demands for managers to make right inferences about the causal processes that could guide future action and strategies (Demsetz, 1973; Denrell & March, 2001; Levinthal & March, 1993; Miner & Mezias, 1996). Even worse, firms may construct illusionary causal relationships about others' failures and learn things incorrectly (Miner et al., 1999). Even if assuming one knows the true degree of failures and the actual reasons behind them, the changing environmental conditions may deteriorate the value of learning from them. Therefore, I expect as the ambiguity of others' performance outcomes (e.g. failures) increases, the value of learning from this source of experience will be reduced.

Complexity has been considered as an important source of ambiguity and a barrier to knowledge transfer between firms (Rivkin, 2000; Simonin, 1999; Zander & Kogut, 1995). I can imagine that the experience offered by a set of organizations is complex as these organizations are heterogeneous and diverse in terms of their attributes. Research in business strategy has suggested that organizations with different attributes require matching with different strategies in order to produce superior firm performance (Burns & Stalker 1961; Lawrence & Lorsch 1967; Thompson, 1965; Woodward, 1965). The higher the complexity regarding the causal links between diverse organizational attributes and outcomes, the more ambiguous the experience spillovers will be generated. Therefore, reference organizations with diverse attributes generate complex experience, while reference organizations with homogeneous attributes are likely to offer salient and systematic experience. Homogeneity can help learning since it is easier to understand and

salient to overcome the tendency to view failure or success as random (Haunschild & Sullivan, 2002; Reason, 1997). Conversely, heterogeneity (complexity) may hinder learning and lead to poor learning results, since it often produces biased interpretations, reconstructions of history to meet perceptions and myths, fictions, and stories, (March & Olsen, 1988; Sagan, 1993).

Extending these ideas into the international context, I argue that, for later foreign entrants, simple and homogeneous FDI experiences is easier to learn; while complex and heterogeneous FDI experience may impede learning. As more and more foreign entries with diverse attributes appear in the host market, the underlying causes for FDI failures are becoming complicated, and will confuse potential learners and lead to their poor learning activities. Hence, I hypothesize that as the complexity of FDIs increases, the positive effect of prior FDI failure experience in a host market on the survival prospects of later foreign entrants that proposed in hypothesis one, will be weakened.

> **Hypothesis 2a (H2a)**: *The positive relationship between a foreign subsidiary's survival rate and the failures of other FDIs before the time of its entry decreases with the FDI complexity.*

Firm-level host-country experience. An organization's potential for learning from other organizations' experience may depend on its own characteristics. Prior relevant experience that prepares an organization to absorb knowledge spillovers from others has been discussed as an important characteristic (Ingram, 2002; Shaver, et al., 1997). Individual psychology literature showed that individual learning is much more effective with prior experience in a problem area (Bransford, 2000; Schuell, 1986). Although organizational experience is not an aggregation of individual experiences, organizations may require the right type of prior experience to benefit from the new

knowledge presented in their environments (Cohen & Levinthal, 1990; Hamel, 1991). Prior relevant experiences create a strong path-dependency of the knowledge stock for organizations. Organizations having no relevant experience before may have difficulty to recognize opportunities or to integrate the new knowledge, and hence, be less likely to take advantage of the experience spillovers from other organizations.

A number of studies in the international management literature have shown that foreign firms learn from their previous experience in a host country, and such experience often improve their performance in the host country (Barkema et al., 1996; Chang, 1995; Kogut & Chang, 1996; Li, 1995; Pennings et al., 1994). Beyond the direct influence, which I control for but do not make the subject of a hypothesis in this study, a firm's host-country experience may also affect its subsequent learning from the experience spillovers offered by other FDIs. I expect that foreign firms with direct operations in the host country receive more benefit from experience spillovers from early entrants, as compared to firms having no host country operations. A foreign firm's direct operations in the host country provide a general understanding of the host country environment that managers require in order to interpret the experience spillovers generated by early FDI failures. By contrast, firms without direct operations in the host country are often unaware of the experience spillovers offered by early FDI failures. Even if the inexperienced firms may obtain some information about prior FDI failures in the host country through random observation, business press, and/or market analysts, their limited understandings of the host country environment may cause them to misinterpret or misapply these experience spillovers. Therefore, given the same level ambiguity, I expect that an experienced firm in the host country will benefit more from the experience

spillovers of early FDI failures, leading to the increased survival rates of its foreign entries in that host country.

> **Hypothesis 2b (H2b)**: *The positive relationship between a foreign subsidiary's survival rate and the failures of other FDIs before the time of its entry is stronger as its parent firm has accumulated the host-country experience.*

Network relationship between late and early foreign entrants. Prior literature has suggested that network relationships between organizations facilitate knowledge transfer and enhance learning quality (Galaskiewicz & Burt, 1991; Greve, 1999; Powell et al., 1996; Uzzi, 1996). Some empirical studies even demonstrated that learning only occurs between related organizations, but not between those that are weakly related or at arm's length (Baum & Ingram, 1998; Darr, et al., 1995; Darr & Kurtzburg, 2000; Ingram & Simons, 1999). Other than examining the effects of learning from the direct experience of related organizations, here I emphasize a different role of network relationships on interorganizational learning. I argue that a firm's potential for learning from the lumped experience spillovers generated by both related and unrelated organizations, may condition on the firm's social network positions. The core of this argument is that the network ties of an organization provide additional information which may affect its subsequent learning from the experience spillovers offered by organizations at arm's length.

Thus it is expected that foreign firms embedded in different types of network ties, such as partnership and trade exchange, will receive more benefit from FDI experience spillovers, compared with firms having no network ties. Tying with experienced foreign investors in the host country can facilitate a firm to acquire a general picture of the host country environment, which is very helpful for managers to correctly interpret the

experience spillovers, to understand the real causes behind the FDI failures, and to insure successful transmission of valid experience. In contrast, firms holding no ties with early entrants in the host market are unlikely to access the experience spillovers offered by early FDIs, and thus have less chance to benefit from them.

Among diverse influential network relationships, joint ownership is the focus of the current study. When two firms have once built joint ownership, there is a possibility of high communication and knowledge sharing between them (Darr et al. 1995; Greve, 1996). As one firm expanded into a new foreign market, the other firm is likely to access the first firm's accumulated operation experience in that market. Thus, in contrast to firms without joint ownership with experienced foreign investors, firms with such joint ownership ties are more capable to get a general understanding of the host market, make sense of the observed FDI failures in the host market, and then more likely to benefit from this experience source. I thus expect:

> **Hypothesis 2c (H2c)**: *The positive relationship between a foreign subsidiary's survival rate and the failures of other FDIs before the time of its entry is stronger as its parent firm has ownership ties with other foreign firms in the host country.*

5.2.3 The Effect of Self Entry Selection

Above hypotheses relating FDI survival with experience spillovers from early foreign entrants' failures before the time of investment do not consider foreign firms' self-selection process of undertaking these FDIs. Whether or not undertaking investments in a foreign market is an important strategic decision and has been studied from a variety of theoretical viewpoints. Conventional literature has emphasized how industry characteristics and national advantages can attract foreign investments (Buckley & Casson, 1976; Dunning, 1980, 1988; Hennart, 1982; Rugman, 1979, 1981), and how

firms' own resources and capabilities spur their foreign entry activities (Chang, 1995; Johanson & Vahlne, 1977). Recently, some scholars have shown that firms' foreign expansion decisions are subject to interorganizational dynamics (Guillén, 2002, 2003; Henisz & Delios, 2001; Lu, 2002; Yiu & Makino, 2002). The first study in Chapter 4 of this thesis has demonstrated that foreign firms are less likely to enter the host market when observing a large number of FDI failures. A common implication of these findings is that firms do not make foreign entry decisions randomly, but are likely to consider important factors before making the decisions. The entry decisions thus can be regarded as endogenous and self-selected, with the aim to adapt to the environment and to enhance the survival chances of the investment (e.g. Masten, 1993; Shaver, 1998). By attempting to incorporate the self-selection process in the current study, I am able to address the importance of this process in congenital learning both empirically and theoretically.

Learning processes that lead to a decrease in an organization's risk of failure have been defined as "survival-enhancing learning" (Baum & Ingram, 1998). There are a number of intermediate processes that can account for survival-enhancing learning. Congenital learning that leads to a decrease in an organization's risk of failure has been highlighted as an elementary process of "survival-enhancing learning" (Baum & Ingram, 1998:997). However, previous examinations of survival-enhancing learning have not explicitly considered foreign firms' self-selection process in terms of making the decision about whether or not setting up a new entry in the first place. I argue that the firms' self-selection process, taking place between when they first conceived of launching a new entry and when the decision of founding the entry was actually made, will affect the congenital knowledge available to be used by the new entry. During the selection process, the foreign firms are likely to graft, search, and utilize the valid knowledge accessible to

them, which I expect, will have direct impacts on the new entry's future performance. In addition, foreign firms' self-selection process is likely to select out a certain type of entries, and thus generate a nonrandom sample for examining the implication of learning from prior FDI failures on the new entry's survival rate. This has been discussed as a "sample selection bias" in the literature (Berk, 1983; Heckman, 1976, 1979; Goldberger, 1981), and may potentially bias the causal relationship between congenital failure-induced learning and FDI survival.

In light of these logics, I expect that, beyond a direct impact on FDI survival rates, a foreign firm's self-selection process has impacts on its post-entry dynamics which may confound the firm's congenital learning mechanism based on prior FDI failures and its implications on FDI survival. Ignoring this selection effect may cause the appearance of a causal relationship where none exists in fact (Heckman, 1979), and reduce the validity of using the congenital learning mechanism to explain the relationship between early FDI failures and enhanced survival rates of late entries. In the current study, I incorporate the endogenous self-selection process when accessing the causal relationship between congenital failure-induced learning and FDI survival. By doing so, I can, on the one hand, improve the empirical model specifications and generate more precise and unbiased estimates (Hamiltion & Nickerson, 2003). On the other hand, I am able to explore the direct implication of this endogenous self-selection process on FDI performance, to which less explicit attention has been directed before. Moreover, by controlling for this self-selection process within which the negative outcome-based learning is one major component (see details in study one), I am able to isolate the effects of the (negative) outcome-based learning from the collective effects of a number of other learning mechanisms lumped together on FDI survival. Hence the revised coefficients of early

FDI failures on later foreign entrants' survival will mainly reflect other learning mechanisms, including inferential interpretations, searching, and experimentation.

5.3 Methods

5.3.1 Sample and Data Sources

I tested above ideas on a sample of Japanese multinationals in manufacturing sector in the People's Republic of China over the period 1980-2000. The context of Japanese direct investment in China is a suitable one for this study. First, there is no left-censoring in our data because China did not re-open its doors to foreign investment until 1979, after nearly four decades in which China was a closed economy (Pearson, 1991). Second, our data cover Japanese firms' foreign direct investment from the beginning of China's economic transition, which makes accurate estimation of prior FDI failures possible. Third, China is one of the largest transition economies in the world where the rules of competition tend to be in substantial flux. This flux creates additional challenges for foreign firms to make appropriate inference on what lead to early foreign entries' success or failure (Peng, 1996; Peng, Lu, Shenkar, & Wang, 2001). Finally, using Japanese investment in China allows us to compare our findings with existing studies (Delios & Beamish, 2001; Pan & Chi, 1999), and expand organization learning theories into the international context.

I obtained data on Japanese firms' activities in China by referring to each annual edition of Toyo Keizai's annual survey of Japanese firm's overseas operation from 1980-2001. This publication is based on an annual census of Japanese FDI, which captures more than 99 percent of listed companies' foreign investment activities (Henisz & Delios, 2001). I then obtained Japanese parent firm information from the Nikkei

NEEDS tapes. This source provides comprehensive annual data on Japanese listed firms' financial, accounting, business information, and demographic information (e.g. date of founding, firm size).

In the first study (Chapter 4), I focused on foreign entry decisions of 940 Japanese companies, publicly listed on the Tokyo Stock Exchange as of the end of 1979, with their primary line of business in the manufacturing sector. The manufacturing industries represented in that sample included foods, textile products, chemicals, robber products, stone, clay & glass products, machinery, electric & electronic equipment, motor vehicles & auto parts, transportation equipment, and precise equipment. Three hundred and sixty-five (365) listed firms made a total of eight hundred and fifty-seven (857) investments in China during the study period 1980-2000. This study took these eight hundred and fifty-seven (857) subsidiary entries as the base sample, and identified that among them one hundred and thirty-eight (138) subsidiaries existed during the study period.

In the next section, I first introduce how I coded the theoretical variables of interests, including prior failures of Japanese entrants, FDI complexity, firm-level host-country experience, and the indicator for a firm's joint ownership ties with early FDI investors. I then elaborate the subsidiary and parent firm characteristics to be controlled into the analysis and how I matched with other data sources to add in industry-level and host country-level data information.

5.3.2 Measures and Analysis

Our dependent variable in this study, *FDI failure (xt)*, was defined as the delisting of a Japanese subsidiary x at time t which was listed in an early edition of Japanese

Overseas Investments. This definition is comparable to that employed in previous research (Barkema, Shenkar, Vermeulen, & Bell, 1997; Delios & Beamish, 2001). Business survival (measured as failure) has received growing research attention as a measure of long-term performance in the past two decades (Aldrich, 1979; Hannan & Freeman, 1977, 1989; Li, 1995; Mitchell et al., 1993, 1994; Romanelli, 1989).

FDI failures before entry. I defined FDI failure experience by early Japanese entrants in the same industry of subsidiary *x* before the time of its entry as:

$$= \sum_{t_{i\,found}}^{t_{x\,found\text{-}1}} (\text{Nfailure}_{it} / \text{Discount})$$

Where $t_{i\,found}$ is the first year that a Japanese FDI established in the *i*th industry of China in which the focal subsidiary *x* compete; $t_{xfound\text{-}1}$ is the year before subsidiary *x*'s entry; $Nfailure_{it}$ is the number of Japanese FDI failures at year *t* in industry *i*. *Discount* is the discount factor used to reflect that the benefits of experience spillovers to organizations may decay over time due to forgetting or antiquation of learning (Argote et al., 1990). To account for the possibility of decay and forgetting, I followed the same approach by Ingram and Baum (1997) and set the discount equal to the square root of the age of the experience, which assumes that depreciation of experience is initially slower than liner, and slows further with time. Thus, for each Japanese subsidiary, I set this variable by including all failures of early Japanese FDIs that operated in the same industry *i* before the focal subsidiary *x*'s founding.

FDI complexity before entry. I measure FDI complexity by looking at the size diversity of Japanese entrants in a focal industry in China before the entry of subsidiary *x*. Organizational size has been noted as "a variable that is on the interface between the

organization and its environment" (Scott, 1992: 258). Organizations of different sizes may use different structures and practices (Hannan & Freeman, 1984; Kimberly, 1976; Scott, 1992), which in turn have been shown empirically (Burns & Stalker 1961; Lawrence & Lorsch, 1967) and theoretically (Thompson, 1967) to affect organizational success. Therefore, I can expect that the higher FDI size diversity, the more complex the structures employed by prior foreign entrants, and then the higher the ambiguity perceived in the experience generated by these early entrants. Specifically, FDI size diversity before entry is measured as the standard deviation of the registered capital of all Japanese foreign entrants before a focal subsidiary's entry, adjusted by the mean of their registered capital:

$$V(C_{it}) = \frac{\delta(C_{it})}{X(C_{it})}$$

Where $\delta(C_{it})$ is the standard deviation of registered capital, represented as C_{it}, by all Japanese entrants in ith industry before subsidiary x's entry; and $X(C_{it})$ is the mean of the registered capital of all Japanese entrants in the ith industry over the same period. The higher score on this index indicates a higher level size diversity of early Japanese entrants before the entry of subsidiary x, suggesting a higher complexity of prior FDI experience. I have also created alternative proxies to measure complexity. Experience emanated by prior foreign entrants were considered to be more complex as their average business range or the diversity of their entry mode structures increase (Anderson & Tushman, 2001; Dess & Beard, 1984). I also tested these two alternative operationaizations of this variable, used in the first study (chapter 4). Results were comparable with the findings reported here, but slightly weaker.

Firm-level host-country experience before entry. I measure the host-country

experience of the foreign firm before founding the subsidiary *x* in China by taking natural logarithm of the number of the firm's prior entries in the host country other than the target industry *i*. This operationalization is consistent with the one defined in the entry study in Chapter 4. I have also created a dummy variable for the firm's host-country experience (coded as 0 before the first entry in industry *j* other than the target industry *i* in the host country and as 1 thereafter). The two variables are highly correlated with each other and yield similar analysis results.

Joint ownership with early FDI investors before entry. I create an indicator to reflect, before the foreign firm founding a subsidiary *x* in China, whether it had any joint international investments with early foreign investors in China. I first identified who held joint ownership with the focal firm before it founded the subsidiary *x*, and then further checked whether any of these foreign firms had ever invested in China. A dummy variable was developed, with "1" indicating that the firm has joint ownership with early FDI investors in China. This operationalization is a bit different from the variable defined in the entry study in Chapter 4. Current one pointed to those early FDI investors in China across industries rather than focusing on a specific industry *i*. Two implications of this measurement also should be noted. First, I did not measure this variable by counting the total number of joint investors operated in China before, which is in line with our purpose to show that whether having social connections is important regardless of how much experience transferred through the network connections. Second, I did not consider indirect social contacts, not because indirect ties are not important, but because indirect ties may complicate the measures.

Subsidiary and firm characteristics. Following previous studies, I controlled for subsidiary size, entry mode, and the structure of foreign ownership (Delios & Beamish,

2001; Li, 1995; Makino & Beamish, 1998). Size was defined as a logarithmic transformation of the registered capital of the subsidiary. In our sample, there were totally four types of entry modes employed by Japanese entrants, i.e. wholly-owned subsidiary, joint venture, acquisition, and capital investment. I coded an entry mode dummy, with "1" indicating the wholly-owned entry form. The structure of foreign ownership was represented by the number of foreign investors involved in the focal subsidiary.

As to firm-level controls, I first constructed the *host country-industry experience* as the total number of entries a firm had in the target industry in China at each year (Delios & Beamish, 2001). Other variables associated with firm-level capabilities and resources, such as firm size, firm age, intangible asset specificity, and diversification, were all included in the analyses of this study (Guillén, 2002; Henisz & Delios, 2001). Firm size was measured as the logarithm of the firm's annual sales which may yield a positive effect on firms' foreign entry rates. Firm age was the years (log) since a firm's founding. The capability of managing intangible assets has traditionally been assumed to provide advantage for a firm to compete in a new market (Caves, 1971). Following standard practices, I measured a firm's intangible assets using two expenditure intensity terms, one for R&D and one for advertising intensity. I defined these two terms as the ratio of firm-level expenditures on R&D and advertising to total sales (Chang, 1995; Delios & Beamish, 2001). Some Japanese firms in our sample made entries in different industries in China, while other firms did not. I hence created a diversification index to control for this firm-level heterogeneity using the entropy measure (e.g. Delios & Beamish, 1999). Finally, two extra dummy variables were included in all models to indicate parent firms' affiliations with two types of business groups: horizontal and vertical keiretsu (see Henisz & Delios 2001 for details). Horizontal keiretsu are business

alliances in which member firms are integrated by such mechanisms as cross-appointments of directors and executives, cross-share-holdings, and joint projects. Member firms may gain information about foreign markets through ongoing trading relationships, personnel exchanges from one keiretsu company to another, and collaborative projects (Helou, 1991). Vertical keiretsu indicates that firms exist in a distinct hierarchy of buyer-supplier relationships. Member firms of buyers are likely to follow suppliers to enter a foreign market (Martin et al., 1998).

Industry and host-country characteristics. Host country's industry competition, economic, and institutional characteristics are also important in determining the success of foreign entries. There is a strong standard in models of organizational exit for measuring competition as a function of industry density, the number of operating organizations in the industry (Hannan & Carroll, 1992). The common finding is that the relationship between density and exit is U-shaped. The initial decrease in exit as density increases is attributed to the increasing legitimacy of related organizational form, and the subsequent increase in the exit rate is attributed to competition. I thus included the number of Japanese subsidiaries in a target industry (*Japanese FDI density*) and their square terms in all models and which were updated at the end of each year (Hannan & Carroll, 1992; Hannan & Freeman, 1987, 1989). Organizational ecologists have also suggested that prior failures free up resources, which can enhance the viability of established organizations, lowering the failure rate in the next period (Carroll & Delacroix, 1982). I hence included the number of Japanese FDI failures in prior year (*Japanese FDI exits*) as to control this effect. Another related argument holds that organizational failure rate is higher as a function of industry density at the time of the organization entered the industry (Carroll & Hannan, 1989). The rational for this is that

organizations founded into dense markets are likely to be forced into less attractive niches, and may lack crucial resources at the time of their entry. Thus, I included the number of Japanese FDI survivors in a target industry before a focal subsidiary *x*'s entry (*JP FDI density at entry time*).

I further included the total number of domestic firms (*Local density*) in the analysis, which allowed us to consider the potential interactions between foreign and domestic firms over the study period. Host country's annual industry growth rate was included to reflect industry attractiveness, and was expected to have a positive effect on FDI survival rate. I obtained industry growth data from *China Statistical Yearbook*. I also controlled for the political disturbance of 1989 in China, by creating a period dummy for year 1989-90 (coded as "1" for these two years and "0" for other years). To ensure that our findings were not simply the result of the passage of time, I included a time-trend variable, *Calendar time*, in the models (Ingram & Baum, 1997). Lastly, since an organization also learns vicariously from the experience of other firms during its life, I also controlled the experience spillovers from failures by other FDIs since the focal subsidiary's entry in the analysis. This variable, *FDI failures since entry*, was represented as a discounted sum of the number of FDI failures in the host market since a focal subsidiary's entry.

5.3.3 Final sample and Estimation model

The FDI exit rate is estimated using *r(t)*, the instantaneous rate from an original state (entry) to a destination state (exit). The hazard rate is specifically defined as:

Where Pr (t, $t + \Delta t$ | t), is the probability of exit in the interval t, $t + \Delta t$ given the FDI was still alive at time t. To estimate this model, I took the base sample of 839 Japanese subsidiary entries in China, and expanded it into 5,316 multiple spells that included all subsidiary-years in which a subsidiary existed. This multiple-spell formulation allows us to include time variation in the covariates. In each spell, a subsidiary's history was broken down into one-year spells in which the subsidiary was at risk if exiting. Each spell was considered as right centered unless an exit occurred (Baum & Korn, 1996).

Once I identified the base-line sample, I added to the subsidiary- and firm-level data and host-country and industry control variables. Although I had complete coverage in our sample for the theoretical variables of interests, the data was incomplete for several subsidiary- and firm-level control variables. The final sample for analysis thus reduced to 812 subsidiaries, of which 111 had exited by the end of 2000. The number of spells for final analysis was 4,944.

An important issue when modeling the hazard of organizational exit is choosing an appropriate functional form for the age-dependence of survival. In the current analysis, I used the flexible piecewise exponential model, which allows the exit rate to vary in an unconstrained way over preselected age segments (Blossfeld & Rohwer, 1995). After examining life tables and exploring estimates of a variety of choices of the breakpoints, we divided the age duration in the failure rate analysis (in years) at: 3.0, 7.0, 11.0. I estimated models using a STREG procedure in STATA which performs maximum likelihood fitting of parametric regression survival-time models. I have also modeled the FDI failure rates using an alternative approach, i.e. the discrete-time hazard event history model with a complementary loglog function. This approach is appropriate for the discrete nature of the current data, yet cannot specify a particular function form for

duration dependence (Allison, 1995; Petersen, 1991). I estimated models by employing the LOGIT procedure in STATA and adjusted standard errors for within subsidiary clustering. Similarly, to address the important issue of age-dependence of failure, I divided subsidiary age into 3 points and estimated constants for each age segment. The results generated from the two approaches are consistent, yet the former was slightly weaker. The estimates from two approaches agreed in all but minor respects. I report the discrete time-time event history model below as to be consistent to the study one in Chapter 4.

5.4 Results

Tables 5-1 and 5-2 show basic statistics and correlations for all the variables in the analysis. Results of the piecewise exponential models of FDI failure were summarized in Table 5-3. This table reports the coefficient estimates and significance tests for seven model specifications, adding the theoretical variables and their interactions sequentially. Model 1 was a basic model with all the control variables. Model 2 added the main effect of prior FDI failures before entry. Model 3 included the entry probability estimated from the first study (Chapter 4) to control the direct effect of the endogenous self-selection process on FDI performance. In models 4, 5 and 6, I added interactions between prior FDI failures before entry and FDI complexity, parent firm host-country experience, and the indicator of parent firm's ownership ties with early investors, respectively, for testing hypotheses 2a, 2b, and 2c. Then, I included all the interaction terms in one model. However, since the interaction between prior FDI failures and parent firm host-country experience was not significant in model 5 or the full model, I dropped this interaction term from the full model and summarized the results in Model 7. The chi-squares at the

bottom of Table 5-3 showed that the addition of the FDI failures, the self-selection process, and the interaction terms significantly, at least partially, improved the model fit.

TABLE 5-1: Summary Statistics for Variables Included in Econometric Analysis [a]

Variables	Mean	s.d.
FDI failure (=1)	0.02	0.15
Prior FDI failures before entry time	3.80	5.53
Self-selection process (λ)	-1.53	0.58
FDI complexity	3.21	1.56
Parent firm host-country experience	2.64	5.86
Ownership ties with early investors *(0/1)*	0.85	0.35
Ln(Subsidiary size)/10	1.51	0.19
Number of foreign investors	1.41	0.62
Entry mode (WOE=1)	0.18	0.38
Host country-industry experience/10	0.94	1.40
Firm age	4.06	0.30
Ln(Firm size)	12.31	1.63
AD intensity	0.01	0.02
R&D intensity	0.03	0.03
Firm product diversity	0.61	0.16
Vertical group affiliation	0.18	0.38
Horizontal group affiliation	0.03	0.04
Japanese FDI density/10^4	4.91	0.83
Japanese FDI density $^2/10^6$	0.04	0.04
Japanese FDI exits	1.04	0.77
Japanese density at entry time/10^2	0.93	0.76
Local density	10.21	0.85
Local industry growth	0.16	0.16
Ln(Calendar year)x100	759.92	0.15
Period dummy (89-90)	0.02	0.15
FDI failures since entry time/10^2	0.14	0.16

[a] N = 4,944 yearly spell

TABLE 5-2: Correlation Matrix for Variables Included in Econometric Analysis [a]

Variables	1	2	3	4	5	6	7	8	9
1 FDI failure (=1)	-								
2 Prior FDI failures before entry time	-0.03	-							
3 Self-selection process (λ)	-0.01	0.05	-						
4 FDI complexity	0.01	0.50	0.14	-					
5 Parent firm host-country experience	0.05	0.24	0.36	0.26	-				
6 Ownership ties with early investors	-0.01	0.02	0.25	0.04	0.15	-			
7 Ln(Subsidiary size)/10	0.00	0.10	0.19	0.09	0.09	0.12	-		
8 Number of foreign investors	0.01	0.00	0.01	0.02	0.02	0.27	0.04	-	
9 Entry mode (WOE=1)	-0.01	0.01	-0.11	-0.02	-0.09	-0.24	-0.03	-0.28	-
10 Host country-industry experience/10	0.04	0.03	0.50	0.09	0.71	0.19	0.08	-0.01	-0.10
11 Firm age	-0.02	0.05	0.16	0.09	0.14	0.14	0.15	0.06	-0.09
12 Ln(Firm size)	0.02	0.06	0.62	0.03	0.45	0.37	0.20	-0.03	-0.13
13 AD intensity	0.01	-0.05	0.00	0.08	-0.03	-0.08	0.08	-0.03	0.00
14 R&D intensity	0.00	0.02	0.18	0.01	0.20	0.01	0.06	-0.12	0.03
15 Firm product diversity	0.00	0.03	0.15	-0.02	0.17	0.05	0.02	0.06	-0.01
16 Vertical group affiliation	0.00	0.07	0.28	0.04	0.22	0.14	0.14	-0.09	-0.06
17 Horizontal group affiliation	0.01	0.00	0.09	-0.02	0.05	0.15	0.05	0.08	-0.08
18 Japanese FDI density/10^4	0.02	0.28	0.30	0.40	0.20	0.00	0.12	-0.01	0.04
19 Japanese FDI density $^2/10^6$	0.03	0.26	0.28	0.33	0.24	-0.01	0.08	-0.06	0.05
20 Japanese FDI exits	-0.01	0.58	0.32	0.50	0.28	0.06	0.18	0.04	0.00
21 Japanese density at entry time/10^2	0.01	0.68	0.28	0.65	0.38	0.01	0.13	0.02	0.01
22 Local density	-0.01	0.08	0.05	0.16	0.04	-0.03	0.03	-0.03	-0.02
23 Local industry growth	-0.02	-0.10	0.06	-0.14	-0.05	0.01	-0.03	-0.05	0.02
24 Ln(Calendar year)*100	0.04	0.21	0.14	0.31	0.13	0.01	0.09	0.07	0.01
25 Period dummy (89-90)	-0.01	-0.09	-0.12	-0.13	-0.05	-0.01	-0.04	-0.03	-0.01
26 FDI failures since entry time/10^2	0.04	-0.12	0.17	0.10	0.06	0.01	0.05	-0.02	0.01

	10	11	12	13	14	15	16	17	18
11 Firm age	0.15	-							
12 Ln(Firm size)	0.57	0.26	-						
13 AD intensity	-0.04	-0.06	0.06	-					
14 R&D intensity	0.24	0.19	0.35	0.02	-				
15 Firm product diversity	0.23	0.05	0.18	-0.09	0.14	-			
16 Vertical group affiliation	0.29	0.14	0.46	-0.05	0.28	0.06	-		
17 Horizontal group affiliation	0.08	0.14	0.22	-0.01	0.06	0.06	0.12	-	
18 Japanese FDI density/10^4	0.32	0.17	0.08	-0.06	0.05	0.01	0.08	-0.03	-
19 Japanese FDI density $^2/10^6$	0.38	0.10	0.13	-0.11	0.07	0.03	0.15	0.03	0.82
20 Japanese FDI exits	0.14	0.09	0.13	-0.06	0.00	0.01	0.11	0.00	0.48
21 Japanese FDI density at entry time/10^2	0.17	0.12	0.08	-0.06	0.03	0.02	0.11	0.02	0.59
22 Local density	0.00	-0.07	-0.01	0.05	-0.10	-0.09	0.02	-0.01	0.19
23 Local industry growth	-0.05	-0.13	0.06	0.02	0.04	0.02	0.05	0.01	-0.31
24 Ln(Calendar year)*100	0.21	0.22	0.00	-0.04	0.01	0.00	-0.02	-0.06	0.78
25 Period dummy (89-90)	-0.06	-0.07	-0.01	0.03	-0.01	-0.02	0.02	0.06	-0.34
26 FDI failures since entry time/10^2	0.28	0.12	0.07	-0.02	0.03	0.01	0.05	0.00	0.52

	19	20	21	22	23	24	25
20 Japanese FDI exits	0.39	-					
21 Japanese FDI density at entry time/10^2	0.59	0.74	-				
22 Local density	0.16	0.09	0.14	-			
23 Local industry growth	-0.22	-0.18	-0.16	-0.13	-		
24 Ln(Calendar year)*100	0.54	0.43	0.41	-0.17	-0.46	-	
25 Period dummy (89-90)	-0.17	-0.18	-0.16	0.02	0.04	-0.38	-
26 FDI failures since entry time/10^2	0.57	0.16	0.16	-0.19	-0.29	0.66	-0.12

[a]: Correlation coefficients greater than .027 are significant at the 5 percent level.

TABLE 5-3: Exit Rate of Japanese Manufacturing FDI in China, 1980-2000 [a]

Variables [b]		M1		M2		M3	
Prior FDI failures before entry time	H1-			-0.25 ***	(0.06	-0.25 ***	(0.06)
FDI complexity x Prior FDI failures	H2a+						
Parent firm host-country experience x Prior FDI failures	H2b-						
Ownership ties with early FDI investors x Prior FDI failures	H2c-						
Self-selection process (λ)						-0.71 **	(0.26)
FDI complexity		0.00	(0.09)	0.06	(0.10)	0.05	(0.10)
Parent firm host-country experience		0.03 *	(0.02)	0.03 †	(0.02)	0.02	(0.02)
Ownership ties with early investors *(0/1)*		-0.49	(0.33)	-0.52	(0.33)	-0.49	(0.33)
Subsidiary-level controls							
Ln (Subsidiary size)/10		0.07	(0.58)	0.17	(0.60)	0.21	(0.59)
Number of foreign investors		0.18	(0.17)	0.17	(0.17)	0.17	(0.18)
Entry mode (*WOE=1*)		-0.04	(0.31)	-0.03	(0.31)	-0.07	(0.30)
Firm-level controls							
Host country-industry experience/10		0.00	(0.09)	-0.03	(0.10)	0.05	(0.10)
Firm age		-0.93 *	(0.41)	-1.06 **	(0.41)	-1.10 **	(0.42)
Ln (Firm size)		0.18 *	(0.08)	0.23 **	(0.09)	0.33 ***	(0.09)
AD intensity		1.42	(5.67)	-0.20	(6.41)	-0.07	(6.63)
R&D intensity		-1.53	(3.81)	-1.48	(3.85)	-2.17	(3.73)
Firm product diversity		-0.44	(0.69)	-0.25	(0.69)	-0.14	(0.70)
Vertical group affiliation		-0.14	(0.29)	-0.10	(0.29)	-0.11	(0.28)
Horizontal group affiliation		1.06	(2.21)	0.70	(2.22)	0.83	(2.23)
Environmental controls							
Japanese FDI density/10^4		-0.46	(0.37)	-0.58	(0.39)	-0.34	(0.42)
Japanese FDI density ^{2}/10^6		3.21	(5.95)	3.58	(6.24)	1.65	(6.46)
Japanese FDI exits		-0.39 †	(0.23)	-0.17	(0.24)	-0.13	(0.25)
Japanese FDI density at entry time/10^2		0.22	(0.26)	0.97 ***	(0.32)	1.00 ***	(0.32)
Local density		0.12	(0.14)	0.14	(0.14)	0.13	(0.14)
Local industry growth		0.18	(0.69)	0.09	(0.70)	0.22	(0.70)
Ln (Calendar year)x100		3.83 †	(2.04)	4.76 *	(2.16)	4.07 †	(2.21)
Period dummy (89-90)		-0.46	(1.11)	-0.32	(1.13)	-0.41	(1.13)
Japanese density at entry time/100		-0.20	(0.96)	-1.49	(1.13)	-0.92	(1.15)
Age 0-3 years		-0.57	(0.52)	-0.56	(0.52)	-0.34	(0.53)
Age 4-7 years		-0.27	(0.35)	-0.53	(0.37)	-0.40	(0.37)
Age 8-11 years		0.37	(0.41)	0.47	(0.41)	0.31	(0.42)
Age > 11 years		-0.88	(0.61)	-0.62	(0.61)	-0.82	(0.61)
Log likelihood (*df*)		-510.5 (27)		-503.4 (28)		-499.5 (29)	
Δ Chi-square change (*df*)				14.06 (1)***		7.90 (1)***	
Baseline model				M1		M2	

[a]: N = 4,944; Parameter estimates are shown, with standard errors in parentheses; 812 subsidiaries with 111 exits; Model intercepts are not reported.

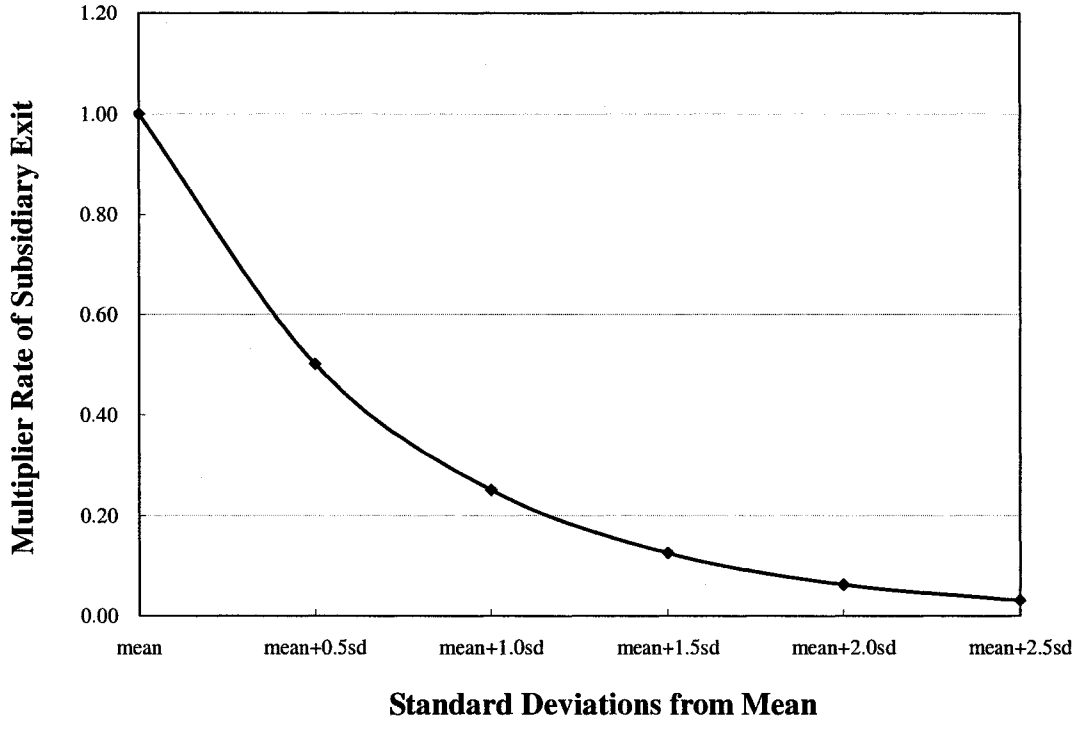
† p<0.10; * p<0.05; ** p<0.01; *** p<.001.

TABLE 5-3: Continued

Variables [b]	M4		M5		M6		M7	
Prior FDI failures before entry time	-0.41 ***	(0.11)	-0.23 ***	(0.06)	-0.14 *	(0.06)	-0.32 **	(0.11)
FDI complexity x Prior FDI failures	0.03 *	(0.01)					0.03 *	(0.01)
Parent firm host-country experience x Prior FDI failures			-0.02	(0.03)				
Ownership ties with early FDI investors x Prior FDI failures					-0.15 *	(0.06)	-0.14 **	(0.06)
Self-selection process (λ)	-0.66 **	(0.26)	-0.68 **	(0.26)	-0.66 **	(0.26)	-0.62 *	(0.26)
FDI complexity	-0.10	(0.13)	0.05	(0.10)	0.06	(0.10)	-0.10	(0.13)
Parent firm host-country experience	0.02	(0.02)	0.04	(0.03)	0.03	(0.02)	0.03 +	(0.02)
Ownership ties with early investors	-0.48	(0.33)	-0.48	(0.33)	-0.10	(0.37)	-0.11	(0.35)
Subsidiary-level controls								
Ln (Subsidiary size)/10	0.24	(0.59)	0.22	(0.59)	0.27	(0.58)	0.30	(0.58)
Number of foreign investors	0.16	(0.18)	0.15	(0.18)	0.17	(0.18)	0.17	(0.18)
Entry mode (*WOE=1*)	-0.07	(0.31)	-0.08	(0.30)	-0.08	(0.30)	-0.08	(0.30)
Firm-level controls								
Host country-industry experience/10	0.03	(0.10)	0.04	(0.11)	0.03	(0.10)	-1.14 **	(0.43)
Firm age	-1.12 **	(0.42)	-1.09 **	(0.42)	-1.11 **	(0.43)	0.01	(0.10)
Ln (Firm size)	0.33 ***	(0.09)	0.32 ***	(0.09)	0.33 ***	(0.09)	0.34 ***	(0.09)
AD intensity	-0.49	(6.50)	0.04	(6.54)	-0.12	(6.49)	-0.65	(6.34)
R&D intensity	-2.38	(3.73)	-2.17	(3.74)	-2.18	(3.79)	-2.29	(3.77)
Firm product diversity	-0.15	(0.70)	-0.13	(0.70)	-0.08	(0.71)	-0.10	(0.70)
Vertical group affiliation	-0.12	(0.29)	-0.10	(0.28)	-0.10	(0.28)	-0.12	(0.29)
Horizontal group affiliation	0.96	(2.24)	0.88	(2.24)	0.81	(2.25)	0.96	(2.26)
Environmental controls								
Japanese FDI density/10^4	-0.17	(0.43)	-0.35	(0.42)	-0.34	(0.41)	-0.17	(0.43)
Japanese FDI density $^2/10^6$	0.81	(6.57)	1.73	(6.44)	1.62	(6.46)	0.79	(6.59)
Japanese FDI exits	-0.13	(0.26)	-0.13	(0.25)	-0.13	(0.25)	-0.13	(0.25)
Japanese FDI density at entry time/10^2	1.06 ***	(0.32)	1.00 ***	(0.32)	1.01 ***	(0.32)	1.06 ***	(0.33)
Local density	0.12	(0.14)	0.13	(0.14)	0.13	(0.14)	0.13	(0.14)
Local industry growth	0.06	(0.73)	0.23	(0.70)	0.24	(0.69)	0.08	(0.73)
Ln (Calendar year)x100	4.01 †	(2.23)	4.05 †	(2.21)	4.13 †	(2.22)	4.08 †	(2.24)
Period dummy (89-90)	-0.41	(1.13)	-0.41	(1.13)	-0.40	(1.13)	-0.40	(1.13)
Japanese density at entry time/100	-0.84	(1.15)	-0.93	(1.15)	-0.93	(1.15)	-0.84	(1.15)
Age 0-3 years	-0.11	(0.54)	-0.38	(0.53)	-0.32	(0.53)	-0.09	(0.53)
Age 4-7 years	-0.28	(0.37)	-0.43	(0.38)	-0.39	(0.37)	-0.27	(0.37)
Age 8-11 years	0.26	(0.42)	0.32	(0.42)	0.33	(0.42)	0.28	(0.42)
Age > 11 years	-0.96	(0.61)	-0.79	(0.61)	-0.80	(0.61)	-0.95	(0.62)
Log likelihood (*df*)	-498.2 (30)		-499.3 (30)		-497.6 (30)		-496.3 (31)	
Δ Chi-square change (*df*)	2.64 (1)†		-		3.76 (1)*		6.46 (2)*	
Baseline model	M3		M3		M3		M3	

Hypotheses 1, predicting that FDI survival rates are positively related to prior FDI failures, received strong support across all models. The consistently negative and significant coefficients between *prior FDI failures before entry* and later foreign subsidiaries' exit rates, indicate that later foreign entrants can benefit from the experience spillovers generated by early FDI failures. The significant coefficients for self-selection process in models 2-7 suggest that foreign firms' endogenous selection process, involving managerial strategic decisions with the aim of adaptation, has positive impact on the survival chances of their selected foreign subsidiaries in the host market. However, the main effects of prior FDI failures did not change significantly in Model 2 in comparison to Model 1 where the self-selection process was not considered. This observation implies that the mechanism regarding how a foreign firm's self-selection process improves its subsidiary's survival chance is largely independent to the mechanism of the firm's congenital learning from the experience of prior FDI failures in enhancing the survival rate of its subsidiaries. Figure 5-1 plots the main effects of prior FDI failures on the survival rates of later investment based on the estimates in Model 6 by considering the self-selection process. It illustrates that when *prior FDI failures before entry time* increases by one standard deviation from its mean, the multiplier rate of a subsidiary's failure rate reduces about 75 percent.

FIGURE 5-1[a]
Main Effects of Prior FDI Failures and Foreign Subsidiary Exit Rates



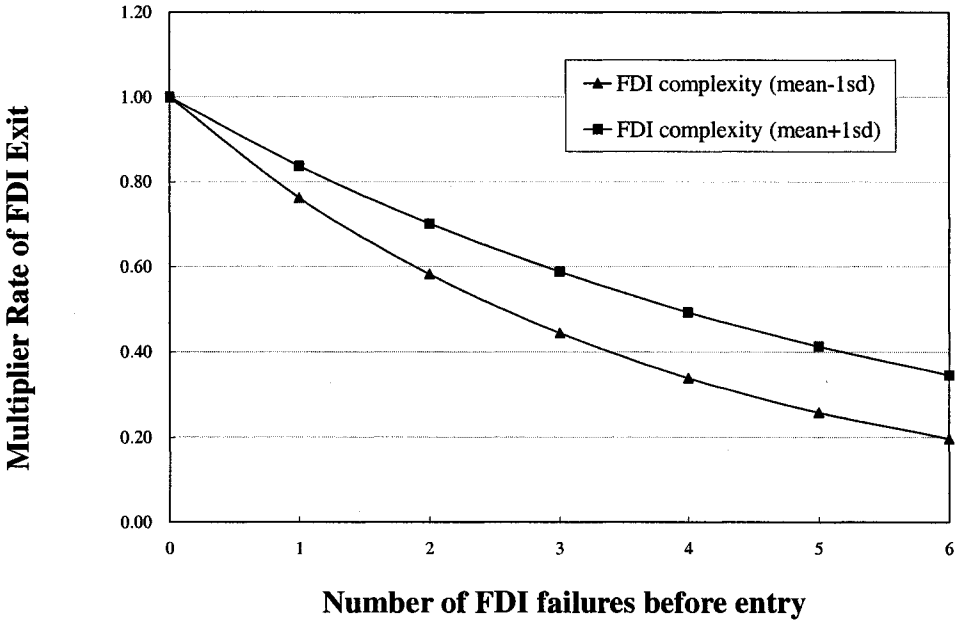
[a] Multiplier rates were computed using significant coefficient estimates from Model 2 Table 3.

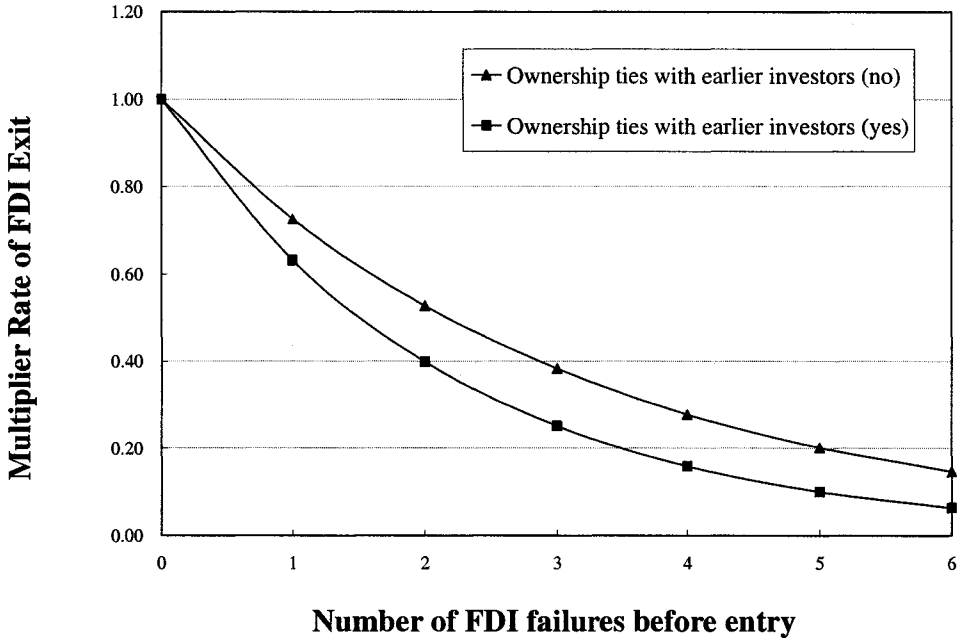
The tests for hypotheses 2, examining the moderating effects of the characteristics of three key learning components on the relationship proposed in hypothesis 1, were presented in models 3 to 7. The interactions between prior FDI failures and FDI complexity were positive and statistically significant ($p<.5$) for models 4 and 7. The incremental chi-square at the bottom of model 4, which compares model 4 with model 3, was significant at the 10 percent level and became significant at the 5 percent level in model 7. Hypothesis 2a, predicting that FDI complexity reduces the benefits of experience spillovers from prior FDI failures on later foreign subsidiaries' survival prospects, were supported. However, the interactions between prior FDI failures and firm-level host-country experience were not statistically significant in models 5 or 7.

Hypothesis 2b, predicting that the firm-level host-country experience strengthens the positive relationship between a foreign subsidiary's survival rate and the FDI failures of other firms before the time of its entry, received no support. It implies that firm-level experiential learning may involve complex interactions with congenital learning process from prior FDI failures than the relative simple one as I predicted here. Future study is thus needed to clarify this issue. The interactions between prior FDI failures and the third moderator, an indicator for whether a parent firm has ownership ties with other foreign investors in the host country, had positive and statistically significant effects ($p<.5$) on the survival prospects of the parent firm's later subsidiaries in models 6 and 7. The incremental chi-square test shown at the bottom of model 6 suggested that the addition of this term significantly improved the goodness of fit. Hence, Hypothesis 2c, predicting that the positive relationship between a foreign subsidiary's survival rate and the FDI failures of other firms before the time of its entry is stronger as its parent firm has ownership ties with other foreign firms in the host country, was strongly supported.

I draw two figures to illustrate the two significant interaction effects summarized in model 7 (H2a and H2c). Figure 5-2 depicts the changing relationships between early FDI failures and a later foreign subsidiary's survival rate at different levels of FDI complexity. Specifically, as FDI complexity increases, the influence of prior FDI failures on a later foreign subsidiary's exit rate became muted. While, Figure 5-3 illustrates that whether or not a foreign firm holding ownership ties with other experienced foreign investors may also affect the relationship between early FDI failures and the survival rate of subsidiaries by this foreign firm. Specifically, for a subsidiary whose parent had ownership ties with early foreign investors in the host market, the influence of prior FDI failures on this subsidiary's exit rate became stronger.

FIGURE 5-2
Moderating Effect of FDI Complexity and Ownership Ties on the Relationship between Early FDI Failures and Foreign Subsidiary Exit Rates





Besides these variables of theoretical interests, several control variables had statistically significant effects on FDI failure rates. Coefficients of firm age and firm size were statistically significant in all models. The negative effect of firm age indicates that subsidiaries by younger foreign firms are more likely to exit from the host country. The positive effect of firm size suggests that subsidiaries by large foreign investors are more likely to exit from the host country, which is consistent with the old findings (Delios & Beamish, 2001). The positive and significant coefficient of Japanese FDI density at entry time corroborates ecologists' observation that organizations that founded into dense environments have higher failure rates. Calendar time had a positive and significant effect on FDI failure rates. Other control variables did not have a consistent effect on the FDI survival rate, however, their direction of effects were mostly consistent with the predictions in relevant literatures.

5.5 Discussion and Conclusions

Chapter 4 examined how failures of early foreign direct investments (FDI) in a host market affect later foreign entries in that market. This chapter in turn investigated how the same source of early FDI failures affects the survival prospects of the later foreign entries. Our results indicate that later foreign entries enjoy a reduced risk of failure by benefiting from the experience spillovers of FDI failures that had occurred before their entries. This study thus depicts a form of congenital failure-induced learning, and provides evidence that this learning process can account for an important organizational outcome, survival. I then introduced three contingency factors to interact with this main effect, including the ambiguity of failure experience, the firm-level host-country experience, and the network relationships between late and early foreign

firms. The results show that, except firm-level host country experience, the other two contingency factors – ambiguity and network – significantly interacted with the congenital learning process. Specifically, the effect of congenital learning on FDI survival became stronger when the experience spillovers were in lower level of ambiguity, or as ownership ties existed between late and early FDIs in the host market. Moreover, this study controlled foreign investors' entry probability, an indicator for self-selection process, when examining the survival function of FDIs. Results illustrate that this self-selection indicator had direct and significantly positive effect on FDI survival, and the estimates for the main effect of prior FDI failures on investment survival did not change significantly in contrast to the model specification without this self-selection indicator.

Taken together, our results confirm previous findings in the empirical literature that congenital learning is an elementary process to account for survival-enhancing learning (e.g. Baum & Ingram, 1998). This study extends the literature by focusing on a previously underemphasized source of congenital knowledge -- experience spillovers generated from early failures. Failures as salient and well-publicized events often create an important source of valid experience for other organizations to learn without causing increased competition in the market. Therefore, by examining the spillover effects of the congenital knowledge embedded in prior failures on the performance outcome of a new organization, this study links the congenital learning literature (Huber, 1991) with the emerging line of research of fruitful learning from failure (Miner et al., 1999).

The study further extends the (failure-induced) congenital learning framework by stipulating a set of conditions in which this learning process may lead to improved organizational performance. Conditions were defined in the present study based on the

characteristics of key learning components which I anticipated will affect how firms make good inferences from others' experience as to guild their future actions. Although previous research has noted that making appropriate inferences is generally difficult (Levitt & March, 1988; Levinthal & March, 1993; Miner et al., 1999), less attention has been directed to systematically or explicitly elaborate the conditions that cause the difficulties. By showing that how the characteristics of key learning components significantly moderate the main effects of the congenital failure-induced learning on FDI survival, this study hence highlights the importance of the nature of learning components on firms' inference making as to affect their future outcomes. For instance, the two significant interaction terms presented in the analysis results illustrate that the ambiguity of FDI failure experience offered by sender organizations weakens the main effect of the congenital learning on FDI survival; while the existence of ownership ties between later foreign entrants (receiver organizations) and early experienced FDI investors in the host country (sender organizations) amplifies this main effect.

Moreover, considering the facts that foreign firms do not make entry decisions randomly but strategically, this study finds evidence that foreign investors' entry decisions in the host market, conceptualized as a self-selection process, have an important impact on survival chances of their selected FDIs. Therefore, two intermediate processes were identified in this study that can account for the improved organizational performance: one is this self-selection process and the other is the congenital learning process from prior FDI failures. Furthermore, I found that the mechanisms associated with each of the processes leading to enhanced FDI survival were largely independent, since whether or not include the self-selection process in the model specification did not generate significantly different estimates for congenital

learning effect. This finding somehow clarifies the concern about the model misspecification and suggests that even if not accounting for the self-selection process in the empirical models, the estimates of the effect of congenital learning on organizational survival were not biased.

Economists and organizational ecologists have suggested other mechanisms through which failures might affect organizational outcomes, including selection and competition mechanisms (Carroll & Hannan, 1989; Demsetz, 1973; Jovanovic, 1982; Hannan & Freeman, 1989). This study emphasized a third mechanism – spillover effect (Kott & Posen, 2005). I used the accumulative number of failures at the time of a new organization's founding to indicate the knowledge spillover over which cumulative learning occurs. This operationalization captures the learning mechanism in a better manner, since learning curve should be essentially cumulative and path-dependent. I have also incorporated appropriate controls to rule out the alternative effects of selection and competition on FDI survival. More importantly, the contingency factors that were found to significantly moderate the relationship between early FDI failures and the survival prospects of later foreign entrants, further validate that a congenital learning mechanism play an important role rather than other alternative mechanisms. Since if other mechanisms play the dominant role, it would be less likely to observe a strengthened effect of prior FDI failures on the survival prospects of later foreign entrants when the complexity of FDI failures is lower, or as ownership ties existed between later foreign entrants and early FDI investors.

Limitations in this study also provide several suggestions for future research. First, the failure experience spillover was simply measured as the occurrences (number) of FDI failures, regardless of the distinct nature of failed organizations or the different

causes leading to the failures. I acknowledge that this approach was taken because of our data limitation and the lack of clear theory to properly operationalize the experience from other organizations (Ingram, 2002). Refinements of the measures of experience may help us better understand what particular types of experiences are more salient or relevant or promising for improving other organizations' performance. Some previous studies found that organizations will be more likely to observe and benefit from experience of others who are closer or related to the focal organization (e.g. Baum & Ingram, 1998; Darr et al., 1995). So, I see a range of promising extensions and refinements that may add value to the basic approach to modeling the failure experience spillover effects.

For instance, Mitchell, Shaver, and Yeung (1994) have grouped the mistakes that cause FDI failure into two broad categories. Foreign direct investment fails because (1) their parent firms incorrectly evaluated the FDI's potential value so that they made a wrong choice of market in which to expand, or (2) FDI was poorly managed after entering the foreign market. It would be interesting to differentiate prior FDI failures into the two types and examine the distinct experience spillover effects from the two types on later FDI survival.

Second, this study only focused on the effect of congenital learning from failures on organizational outcome. Some learning theorists have suggested that learning from the failure experience of others may be more fruitful than learning from others' success (Miner et al., 1997). It was suggested when learning from others' success, firms often apply a simple learning rule, and copy the exact practices from the successful firms without taking much effort to detect the underlying causal processes (Beckman & Haunschild, 2002; Kim & Miner, 2000). Therefore, it would be interesting for future

research to compare the relative magnitude of effects of learning from failure versus successes on a same organizational outcome.

Third, a primary goal of this study is to highlight the importance of the nature of the key learning components in understanding the effect of congenital learning mechanism on an important firm outcome (survival). However, I failed to demonstrate that firm-level host-country experience, indicating an important characteristic of receiver organizations, strengthens the effect of congenital learning from prior FDI failures on a later foreign entrant's survival rate. This result may indicate the complex interactions between organizations' experiential learning and learning from the experience provided by others. Another important organizational characteristic that has been often discussed in the literature to affect firms' potentials for learning is absorptive capacity. It has been suggested that organizations with superior absorptive capacities are more likely to benefit from the experience spillovers generated by others (Cohen & Levinthal, 1990). Therefore, I think future effort to incorporate receiver organizations' absorptive capacity into the (failure-induced) congenital learning model would extend the current model in an important way.

This study yields important insights concerning the success of foreign direct investments. There are many opportunities to build on the identification here of the interrelationship between a foreign subsidiary's survival and its learning from the prior FDI failures occurred before its entry. In addition, although our operationalzations of theoretical variables are somewhat specific to our FDI context, the theoretical formulations and findings reported here may inform future research aimed at replicating or refining the findings in different organizational forms across different national or industry contexts.

CHAPTER 6

CONCLUSION

In this chapter, I summarize the main research findings of the two studies, highlight the contributions of the thesis, and then discuss promising avenues for future research.

6.1 Summary of the Findings

The two studies in this thesis investigated two causal models: 1) how failures of early foreign direct investments (FDI) in a host market affect subsequent foreign entries in that market; and 2) in turn how the same source of FDI failures affect the survival prospects of these new foreign entries by controlling their entry probability in the host market. The thesis further introduced a set of contingency variables, depicting the nature of pivotal learning components, to interact with the two baseline causal models. The three characteristics emphasized here are the ambiguity of FDI failures, the self experience of potential foreign investors, and the social contacts between the potential foreign investor and experienced foreign firms in the host market in a specific industry (study one) or across industries (study two).

Study one (Chapter 4) empirically examined the first causal model, relating prior FDI failures in a host market to a foreign investor's entry decision in that market, and then explored the moderating roles of the nature of pivotal learning components on the main effect. The key findings of this study indicate that a firm was less likely to

enter a foreign market the greater number of failures of peer firms in the market. This negative effect was found to be stronger when the failure experience was at a lower level of ambiguity, or as the firm had direct experience in the host country, or as joint ownership existed between the firm and early FDI investors in a specific industry in the host market.

Study two (Chapter 5) empirically investigated the second causal model, relating the same source of FDI failures (before the time of entry) to the survival prospect of a foreign investor's entry. I examined the moderating role of the similar set of characteristics of pivotal components on this main effect. The results indicate that later foreign entries enjoyed a reduced risk of failure by benefiting from the experience spillovers of FDI failures that had occurred before their entries. Results also showed that, except for firm-level host country experience, the other two contingency factors – ambiguity and network – significantly moderated the main effect. Specifically, the main effect of prior FDI failures on the survival prospects of later foreign entries became stronger when the failure experience was at a lower level of ambiguity, or as joint ownership existed between the foreign firms launching the later entries and early FDI investors across industries in the host market. In addition, this study controlled for foreign firms' entry probabilities as an indicator for foreign firms' self-selection process, when examining the survival chances of their FDIs. This self-selection indicator had a direct and significantly positive effect on FDI survival, and the estimates for the main effect of prior FDI failures on the survival prospect of later foreign entries did not change significantly as compared to the model specification without this self-selection indicator.

6.2 Contributions of the Thesis

The first study (chapter 4) contributes to existing interorganizational imitation literature by advancing a negative-outcome induced learning model and highlights the importance of different sources of uncertainty, in the learning process. First, treating peer failures as salient outcome information for others to decide what to imitate, this study links the literature of outcome-based imitation (Chaung & Baum, 2003; Haunschild & Miner, 1997) with an emerging body of research on learning from failure (Miner et al., 1999). Second, this study incorporated different sources of uncertainty which derived from the characteristics of pivotal learning components, to moderate the negative-outcome induced learning model. Previous studies have not conclusively established that how different sources of uncertainty affect firms' decision making based on outcome information (Haunschild & Miner, 1997; Ingram, 2002; Mezias & Eisner, 1999). This study developed a reasonable conceptual framework and provided strong evidence to show that the different sources of uncertainty moderating the outcome-based learning process are derived from the nature of key learning components. The uncertainty sources emphasized here include the causal ambiguity of the information generated by sender organizations, the receiver firms' specific experience in the host market, and the joint ownership ties between sender and receiver firms. This study thus integrates the conceptualization of uncertainty with the research on causal ambiguity, firm-specific experience, and interfirm network ties.

The second study (chapter 5) advances a congenital failure-induced learning model that has impacts on an important organizational outcome – survival, and highlights the importance of firms' appropriate inference making in this model. First, focusing on a previously underemphasized source of congenital knowledge –

failure-based experience spillovers, this study links the congenital learning literature (Huber, 1991) with the emerging stream of work of learning from failure (Miner et al., 1999). Second, the study extends the (failure-induced) congenital learning framework by stipulating a set of conditions in which this learning mechanism may lead to improved organizational performance. I defined conditions in the present study based on the characteristics of key learning components which I anticipated would affect how firms make good inferences so as to correctly guild their learning actions. Previous studies have not adequately addressed this issue by showing that how firms make inferences based on others' outcome experience (Miner et al., 1999). This study developed a conceptual framework and provided evidence to demonstrate that the nature of pivotal learning components indeed affects firms' inference making and thus in turn influences their learning outcomes. The characteristics of pivotal components identified in this study include the causal ambiguity of the information generated by sender organizations, the receiver firms' specific experience in the host market, and the joint ownership ties between sender and receiver firms. Therefore, this study integrated the conceptualization of inference making and learning outcomes with the research on causal ambiguity, firm-specific experience, and interfirm network ties. Lastly, this study contributes to the foreign market entry literature by showing that foreign investors' entry decisions, conceptualized as a self-selection process, have important impacts on FDI survival.

Taken together, two mechanisms exist that can account for an improved organizational performance: one is this self-selection process and the other is the congenital learning process from prior FDI failures, the main focus of this study. The two mechanisms play roles at different time intervals of organizations' life histories.

Self-selection occurs before the founding of a new organization. Congenital learning occur before an organization's founding, during the process of its founding, and even after this founding, since organizations may remain firmly imprinted with the congenital knowledge through their lifetime. Nevertheless, the inclusion of the self-selection process did not significantly change the estimates for the congenital learning effect on FDI survival. This finding implies that the congenital learning mechanism on FDI survival could be largely independent from the self-selection mechanism, even though the self-selection mechanism occurred before the congenital learning. This finding somehow clarifies researchers' concern on the potential model misspecification or sample-selection bias if not accounting for the self-selection process.

Although study one and study two focused on different causal models, they each point to failure-induced interorganizational learning phenomena. By advancing a failure-induced interorganizational learning framework that involves learning processes and outcomes, this thesis contributes to previous interorganizational learning studies in several ways.

First, by investigating an important learning source that has been previously overlooked – peer failures, this thesis helps to counteract the general tendency to study success in the extant literature which has been criticized as having a strong "success" bias.

Second, the thesis identified a set of contingency factors that have important influences on the relationship between prior FDI failures and subsequent foreign market entry decision and the entry's survival rate in the host market. The significant moderation effects of these contingency factors confirm that our current adoption of an

interorganizational learning perspective is a valid approach. These significant contingency factors also illustrate that the occurrences of (failure-induced) interorganizational learning are dependent on moderating conditions. To comprehensively understand interorganizational learning phenomena, it is necessary to identify and develop theories for these conditional effects.

Third, previous research on interorganizational learning processes and outcomes have been criticized for being disintegrated. The mechanism for outcome-based (mimetic) learning on organizations' strategic actions differs from the mechanism for (survival-enhancing) congenital learning. This thesis connects the two learning mechanisms by incorporating the self-selection effect estimated from study one where outcome-based learning is an important element, into the examination of congenital learning in the study two.

Finally, interorganizational learning perspectives have had limited applications to the case of MNCs. This thesis, by investigating interorganizational learning dynamics in the international context, not only contributes to the international management literature, but also extends organizational learning theory as well to the specific case of the MNC.

6.3 Limitations and Suggestions for Future Research

Limitations in this study also offer intriguing avenues for future research. First, the outcome information and failure experience spillovers were simply measured as the occurrences (number) of FDI failures, regardless of the distinct nature of failed organizations or the different causes leading to the failures. Research in international management has suggested that owing to the inherently high cost and liability of

operating in a foreign market (Zaheer, 1995), foreign firms are liable to make mistakes such as in sourcing, choosing production sites, selecting distribution approaches, and in making logistic decisions. Therefore, considering the nature and/or the causes of FDI failure in the host market may add value to the basic approaches to modeling negative outcome information or failure experience spillover that I advanced in this thesis.

For instance, Mitchell, Shaver, and Yeung (1994) have grouped the mistakes that cause FDI failure into two broad categories. Foreign direct investment fails because (1) their parent firms incorrectly evaluated the FDI's potential value so that they made a wrong choice of the market in which to expand, or (2) the FDI was poorly managed after entering the foreign market. Future research could examine it and how the two types of FDI failures affect subsequent foreign market entry decisions and in turn the survival chances of the entries asymmetrically.

Second, this study only focused on the effect of failure-induced interorganizational learning on organizations' strategic actions and outcomes. Some learning theorists have suggested that learning from the failure experience of others is asymmetric to learning from others success (Miner et al., 1997). It was suggested when learning from others' success, firms often apply a simple learning rule, and copy the exact practices from the successful firms without taking much effort to detect the underlying causal processes (Beckman & Haunschild, 2002; Kim & Miner, 2000). In contrast, when learning from others' failure, firms are likely to conduct deep analyses, experimentations, and explorative search for better solutions (Miner et al., 1997). Therefore, it would be interesting for future research to compare the relative magnitude of effects of learning from failure versus successes on determining firm's strategic actions as well as their outcomes.

Third, this thesis highlighted the importance of several key learning components to understanding the failure-induced interorganizational learning phenomena. The features emphasized here only depict part of the range of key learning components. Thus, a natural extension is to study other features of learning components, such as firm-level absorptive capacity, and other types of network ties between organizations (e.g. business group affiliations).

Fourth, learning theorists have suggested that organizations often react to their observed failures by taking a particular course of actions. This thesis only focused on a firm's imitation (avoiding, i.e., non-entry decision) as a direct response to peers' failures. Other than failure-triggered imitating or avoiding a focal strategic action (foreign market entry), organizations would like to conduct inferential learning, such as experimentation with new routines. Therefore, future research is needed to explore other organizational responses, such as experimentations and innovation in new businesses or new host markets, and how pivotal learning components might affect such explorative responses.

Finally, since our operationalzations of theoretical variables are somewhat specific to our sample of the population of Japanese investment in China, a reasonable concern may arise as to the generalizability of the findings of this thesis. Japanese firms have a relatively higher level of collectivism which may induce them to learn from each others' experience more easily. For other populations of foreign investors, such interorganizational learning effects on organizations' strategic actions and outcomes may not be as strong as within Japanese firms. This concern calls for future research to replicate and/or refine current findings in other national populations of MNCs beyond the host context of China.

Appendix 4-1: Summary of Hypotheses Testing in Study One

Hypotheses	Results[a]
Failure-induced Learning in Foreign Market Entry	
H1a: *A firm's likelihood of launching a new entry in a host market is negatively related to the time-adjusted failures of early FDIs in that market.*	Support
H1b: *A firm's likelihood of launching a new entry in a host market is negatively related to the size-weighted failures of early FDIs in that market.*	Support
H1c: *A firm's likelihood of launching a new entry in a host market is negatively related to the failures of early FDIs by same-industry firms in that market.*	Support
The Moderating Effects of Uncertainty	
Causal ambiguity of FDI failures	
H2a: *Complexity weakens the negative relationship between firms' foreign entry rates and the time-adjusted failures of other FDIs.*	Support
H2b: *Complexity weakens the negative relationship between firms' foreign entry rates and the size-weighted failures of other FDIs.*	Support
H2c: *Complexity weakens the negative relationship between firms' foreign entry rates and the failures of FDIs by same-industry firms.*	Support
Firm-level host-country experience	
H3a: *The negative relationship between foreign entry rates and the time-adjusted failures of other FDIs is stronger for firms experienced in the host market than for firms inexperienced in that market.*	Support
H3b: *The negative relationship between foreign entry rates and the size-weighted failures of other FDIs is stronger for firms experienced in the host market than for firms inexperienced in that market.*	Support
H3c: *The negative relationship between foreign entry rates and the failures of FDIs by same-industry firms is stronger for firms experienced in the host market than for firms inexperienced in that market.*	Support
Social contacts	
H4a: *The negative relationship between foreign entry rates and the time-adjusted failures of other FDIs is stronger for firms having joint ownership with other firms who have experience in the host country.*	Partial support
H4b: *The negative relationship between foreign entry rates and the size-weighted failures of other FDIs is stronger for firms having joint ownership with other firms who have experience in the host country.*	Support
H4c: *The negative relationship between foreign entry rates and the failures of FDIs by same-industry firms is stronger for firms having joint ownership other firms who have experience in the host country.*	Not support

[a] † $p<0.10$; * $p<0.05$; ** $p<0.01$; *** $p<.001$

Appendix 5-1: Summary of Hypotheses Testing in Study Two

Hypotheses	Results[a]
Congenital Learning from FDI Failures	
H1: *A foreign subsidiary's survival rate is positively related to the FDI failures by other firms in the host market before the time of its entry.*	Support
Moderating Effects of Pivotal Learning Components	
H2a: *The positive relationship between a foreign subsidiary's survival rate and the FDI failures of other firms before the time of its entry decreases with the FDI complexity.*	Support
H2b: *The positive relationship between a foreign subsidiary's survival rate and the FDI failures of other firms before the time of its entry increases with its parent firm's host country experience.*	Not support
H2c: *The positive relationship between a foreign subsidiary's survival rate and the FDI failures of other firms before the time of its entry is stronger as its parent firm has ownership ties with other foreign firms in the host country.*	Support

[a] † p<0.10; * p<0.05; ** p<0.01; *** p<.001

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