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Will a Second Mouse Get the Cheese? Learning from Early Entrants' Failures in a Foreign Market

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We examine the conditions that can facilitate or hinder the effectiveness with which a new entrant learns from the failures of prior entrants by analyzing the experiences of 822 Japanese subsidiaries in China founded between 1979 and 2000. Our conceptual arguments and empirical findings demonstrate that learning from the failure experiences of prior entrants increases a new entrant's survival chances when entering China. Further, we find that the value of this learning is less effective when there is a greater level of heterogeneity in the causes of these failures. However, this learning is more effective when a new entrant's parent firm has ownership ties with investors who had ventures that failed previously in China.

Keywords: vicarious learning from failures; causal heterogeneity; network ties; learning effectiveness
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The early bird may get the worm, but the second mouse gets the cheese.
—Steven Wright, with apologies to William Camden

Introduction

Can a late entrant learn and benefit from the failure experiences of prior entrants in a foreign market? The extant literature on early-mover and late-mover (dis)advantages (Lieberman and Montgomery 1998) suggests that the primary disadvantage for early entrants is the pioneering cost, leading to mistakes and even failures, which may provide an edge to the entrants who entered late assuming they can effectively learn from these mistakes and failures. Presumably, late entrants can avoid meeting the same fate as their failed predecessors by learning from them.

Organizational learning theorists have examined this issue and referred to new entrants' learning from the failures of early entrants as a form of vicarious congenital learning (Baum and Ingram 1998, Huber 1991, Ingram and Baum 1997). Such congenital learning should help a new entrant overcome its competitive disadvantage and enhance its survival chances in the market. However, with the exception of Kim and Miner (2007), prior research has not found that the congenital experiences of failed predecessors provide useful information that improves the survival chances or performance of later entrants.

This may be so, because unlike the literature on mimetic learning and knowledge diffusion (Greve 2005, Ingram 2002), research on congenital learning has not considered the conditions under which new entrants may or may not learn from the experiences of prior entrants. Our study addresses this conceptual issue by considering the conditions that affect the effectiveness with which new entrants can learn from their unsuccessful predecessors. We draw upon a vicarious learning framework to develop a model that specifies the factors that might facilitate or inhibit a new entrant's congenital learning from prior failed entrants. The framework considers the nature of the sending and receiving organizations, as well as their relationships (Greve 2005, Ingram 2002). Likewise, our model identifies three factors that influence the effectiveness of congenital learning: the causal heterogeneity of the failure experiences of prior entrants (sending organizations), the learning ability of new entrants (receiving organizations), and the network ties between the failed entrants and new entrants.

We explore these factors by examining Japanese foreign direct investment (FDI) in China between 1979 and 2000. This time period is important because China reopened its doors to FDI after 1979. At that time, China was new to the commercial world. Learning from the experiences of early entrants in China would have been critical for later entrants' success. Japanese firms were particularly active in China, entering earlier and

more frequently than firms from other nations (United Nations Conference on Trade and Development 2001). As a result, Japanese firms accumulated much experience with success and failure, and they came to be known for their emphasis on learning from peers who were already active in a host country (Henisz and Delios 2001). These features make our sample suited for testing our conceptual framework.

Our study makes three contributions to the learning literature. First, our extension of a vicarious learning framework (Greve 2005, Ingram 2002) to the context of new entrants' congenital learning from failed prior entrants uncovers complex learning dynamics. These dynamics help identify when and why learning from prior entrants' failures might or might not enhance the survival chances of a new entrant, and they thereby illustrate the boundary conditions when later entrants can achieve late-mover advantages. Furthermore, we contribute to the literature on learning from complexity (Beckman and Haunschild 2002, Haunschild and Sullivan 2002) by demonstrating the inability of new entrants to learn from the failures of prior entrants that have high-level heterogeneity in their perceived causes. Third, we demonstrate that network ties, more so than experience, can facilitate a new entrant's learning from the failures of prior entrants. This suggests that such preentry ties can be a conduit by which vicarious learning flows from failures to later entries, making later entries more successful.

Theoretical Background

The knowledge with which a firm is endowed at its founding shapes its development and performance (Cyert et al. 1993, Greve 1999, Huber 1991). Because new firms may suffer from the liability of newness (Aldrich and Auster 1986, Freeman et al. 1983) and the experiences of their founders or employees may be limited or biased, the experience of early entrants becomes an important source of learning for new firms to obtain additional and up-to-date knowledge (Huber 1991, Levinthal and March 1993).

Organizational learning theory stresses that a firm's knowledge at its founding affects its ability to adapt. Thus, firms that enter a market with the knowledge that enables them to adapt by absorbing new knowledge will be more likely to succeed (Cyert et al. 1993). Prior studies have demonstrated the benefits of congenital learning from early entrants' operating experience, such as in shipbuilding (Argote et al. 1990), hotel chains (Baum and Ingram 1998, Ingram and Baum 1997), and the U.S. medical and manufacturing sectors (Mitchell et al. 1994, Shaver et al. 1997). However, this research has focused on learning from successful prior entrants and/or from all prior peer entrants, regardless of their level of success. Researchers have rarely distinguished the benefits of learning from failed prior entrants (Denrell 2003, Miner et al. 1999), even though failure is a more likely outcome than success (Brüderl et al. 1992). Even when the domain of prior entrant failures was examined, the results were generally inconclusive (e.g., Ingram and Baum 1997), or the domain was not the core question of the research (e.g., Kim and Miner 2007).

The experiences of failed entrants should be investigated, as such experiences are an important source of information for new entrants (Denrell 2003, Miner et al. 1999). Analyzing prior failures helps new entrants to avoid wrong practices and to experiment with alternative actions, routines, and business models that can lead to successful outcomes (Ingram 2002, Kim and Miner 2007).

However, learning from the experience of others is not easy (Levinthal and March 1993, Levitt and March 1988). Organizational learning theorists have suggested that effective interorganizational learning is influenced by three sets of conditions: the nature of the sending organization, the nature of the receiving organization, and the nature of the relationship between them (Greve 2005, Ingram 2002). We build on and extend this vicarious learning framework to understand how new entrants effectively learn from the failure experience of prior entrants. New entrants are the receiving organizations in this context, and their failed predecessors are the sending organizations.

To extract value from early entrant failures, a new entrant needs to convert its observations into valid interpretations and actions. To do so, new entrants need to construct causal theories about the failures and make deliberate effort to create new and better organizational routines, practices, and strategies to replace their old ones (Kim and Miner 2007, Miner et al. 1999). This form of inferential learning goes beyond a simple imitation of perceived survivors or the simple rejection of inefficient organizational routines or practices (Huber 1991, Miner et al. 1999). Instead, the effectiveness of such learning is largely dependent on the quality of causal inferences.

It is possible that new entrants may draw incomplete or incorrect inferences from observed failures (Levitt and March 1988, Miner et al. 1999). An initial pitfall is complexity in the causes of these failures. For observers, each failure has an associated level of complexity in terms of its cause(s). Over time, aggregated failures in an industry with heterogeneous causes can exacerbate this complexity. The greater the heterogeneity in causes of failures, the greater the challenge for an observer to identify the key risks and primary causes. Thus, the effectiveness with which a new entrant can learn from the failures of prior entrants depends on the level of heterogeneity in the perceived causes of these failures.

A second challenge is that new entrants differ in their ability to learn and perhaps differ also in their motivation. Although new entrants are motivated to learn

from prior entrants' failures to avoid meeting the same fate, the extent to which the new entrants actually learn depends primarily on their ability to draw valid inferences from the failure experiences of their predecessors. Finally, new entrants differ in the extent to which their founders' networks allow them to collect relevant information from prior failed entrants.

Hypothesis Development

Learning to Survive

Failures of peer foreign subsidiaries can be an important source of experience and knowledge for new entrants, helping improve their chances of survival (Ingram and Baum 1997, Kim and Miner 2007). The demise of these foreign subsidiaries makes their experience and knowledge accessible to new subsidiaries in the same industry after their suppliers, customers, and core employees leave to work with or join other firms (Haveman and Cohen 1994). By evaluating the conditions surrounding failures, new entrants attempt to identify the reasons leading to the predecessors' failures and determine whether they themselves might be subject to a similar fate; such evaluation enables them to take steps to resist potential threats by avoiding inappropriate strategies and practices and to develop new routines and practices when entering the market (Kim and Miner 2007, Miner et al. 1999). FDI failures from the same home country and target industry are particularly useful, because such experience is easily accessible and applicable, and new entrants can benefit from this experience to achieve a higher survival rate.

Hypothesis 1 (H1). *The greater the level of the failure experience of earlier entrants from the same home country and in the target industry of the host country, the higher the survival rate of a new entrant.*

Causal Heterogeneity Across Failures Hinders Learning. A failure of peer foreign subsidiaries is generally informative, yet a new entrant may not be able to identify exactly what caused the failure. Even if individual failures have relatively simple causes, the causes tend to vary across cases. The greater the heterogeneity in the causes of failures, the more difficult it becomes to identify the key risks, which adversely influences the effectiveness of later entrants' learning.

Although the effect of heterogeneity on learning has been examined in the context of mergers and acquisitions (Beckman and Haunschild 2002), the airline industry (Haunschild and Sullivan 2002, Miller and Chen 1996), and the automobile industry (Rhee et al. 2006), the results are mixed. Some scholars conclude that heterogeneity generates better learning outcomes because it acts as an antidote to managerial myopia and thereby can stimulate a more thorough search and a deeper analysis of latent causes (Beckman and Haunschild 2002, Haunschild and Sullivan 2002, Miller and Chen 1996). Others suggest that because of limited cognitive capabilities, heterogeneity reduces the motivation to learn and impedes knowledge transfer across organizations, resulting in biased interpretations and weaker solutions (March and Olsen 1976, Rhee et al. 2006).

Looking at the findings more closely, it becomes apparent that heterogeneity is generally more beneficial when firms learn from their own experience or from the experiences of closely networked partners. In such situations, learners have access to firsthand information (Haunschild and Sullivan 2002) or secondhand information with samples of both successful and unsuccessful cases (Beckman and Haunschild 2002). Heterogeneity in such samples provides a wide set of action-outcome possibilities, including solution attempts. This heterogeneity offers contrasting information that allows for a deeper analysis of the root causes of the failure, resulting in better causal inferences. Thus, heterogeneity facilitates learning by helping clarify the causal relationships, removing uncertainty from the experiences, and presenting managers with a variety of potential solutions (Beckman and Haunschild 2002).

Nevertheless, in the context of learning via observing others' experience, heterogeneity becomes less beneficial, and it can hinder learning if it fails to clarify the causal relationships and adds ambiguity or leads to observers making superficial attributions (e.g., "blame the environment"). The demise of peer foreign subsidiaries offers information about conditions and symptoms associated with their failures, but it does not provide solutions to the threats of failure. New entrants must rely on self-derived inferences to construct ideas about causality and formulate hypothetical and untried solutions (Kim and Miner 2007, Miner et al. 1999). In this situation, heterogeneity in a sample of only unsuccessful cases indicates that different actions resulted in a similar fate. This can lead firms to make ungrounded causal inferences.

Two mechanisms can explain why heterogeneity might lead to naïve conclusions on causality and hinder the effectiveness of a new entrant's learning from the failures of early entrants. First, when the causes of failure differ significantly across multiple firms, interpreting this information or drawing reasonably accurate conclusions is difficult (Haunschild and Miner 1997). As a result, new entrants are either unable to draw a clear or useful inference from the failures or tend to attribute them to the external environment. Both decrease the motivation to learn and prevent an in-depth search for solutions. In addition, the decision science literature identifies that the degree of variation across observations correlates to the degree of randomness (Kahneman and Tversky 2000); hence, failures with multiple causes can lead new entrants to believe that the failure of prior entrants is case specific or simply random. Holding such

beliefs leads to the construction of illusionary causal connections and, eventually, poor decisions (Miner et al. 1999). On the other hand, homogeneity in the causes of prior failures helps learning, since it enables a new entrant to construct consistent and salient explanations, which makes the firm less likely to view the failures as random or case specific (Haunschild and Sullivan 2002, Reason 1997).

In the foreign expansion context, the size of expansion, entry mode, and location choice are three important decisions for any foreign investors. Prior research has demonstrated that subsidiaries with different sizes, equity structures, and locations differ in their expansion motives, resource requirements, legitimatization, and competitive positions in the host country environment (Chang and Xu 2008, Delios and Beamish 2001, Li 1995, Li et al. 2007). These differences expose the foreign subsidiaries to different risks, which often lead to different performance outcomes. New entrants naturally attend to these observable features of prior failed entrants and believe that these features contain important clues associated with the failures; based on these clues, they can then somewhat identify the root causes of the failures. Accordingly, the greater the heterogeneity in size, equity structure, or location of failures of prior entrants, the greater the complexity in identifying the root causes of the failures (if any) and the greater the difficulty for potential new entrants to find good solutions.

Heterogeneity in firm size across failures: Firms of different sizes differ in terms of their resources, capabilities, and structures. These differences expose them to different levels and types of mortality hazards (Freeman et al. 1983). For instance, research on the size–mortality relationship suggests that small-firm failures tend to be attributed to the "liability of smallness" as connected to a lack of resources and capabilities (Aldrich and Auster 1986, Freeman et al. 1983), but large-firm failures are often attributed to organizational inertia or incompetence in adapting to environments (Hambrick and D'Aveni 1988, Hannan and Freeman 1984). Therefore, the greater the size heterogeneity in prior FDI failures, the more likely that the failures are perceived as complex and arising as a result of diverse causes.

Heterogeneity in ownership structures across failures: Joint ventures (JVs), wholly owned foreign subsidiaries (WOFSs), and mergers and acquisitions are the three primary FDI modes that feature different ownership structures (Gomes-Casseres 1989) and present different levels of performance outcomes. Research has identified a number of key reasons to explain dissolutions of international JVs. A few reasons include misaligned interests between partners (Shenkar and Zeira 1987), complexity in management (Killing 1983), a lack of experience and capability in working with others (Barkema et al. 1997), opportunism (Parkhe 1993), and unequal paces in learning (Hamel 1991). By contrast, WOFSs avoid many of the partner-related problems associated with JVs (Kogut and Singh 1988) but present unique problems of their own. Under full ownership of a foreign investor, a WOFS is subject to a greater liability of foreignness, it lacks legitimacy, and it receives limited local support for the development of local resources and local knowledge (Kogut and Singh 1988, Li et al. 2007). Sharing some problems with JVs, the failures of mergers and acquisitions also have a number of unique problems, such as overpayment, lack of fit, weak managerial attachment, and difficulty in postacquisition integration (Jemison and Sitkin 1986).

Clearly, different equity structures are subject to different types of risks and costs, and they are conferred with different levels of legitimacy, resources, knowledge, and learning opportunities in the host market (Barkema et al. 1996, Delios and Beamish 2001, Li et al. 2007). Therefore, the greater the diversity of the ownership structures found in the failed entrants, the more likely their failures are perceived to be due to heterogeneous causes, and the more difficult it becomes for new entrants to construct clear and useful inferences to guide their own entry actions in the host market.

Heterogeneity in locations across failures: In a large country such as China, variations exist in different regions regarding the market size, technology base, level of market development, political institutions, and culture (Fan and Wang 2006, Qian 2001). Firms located in the same region are subject to the same economic, social, and political environment, which constrains their choices and forces them to develop similar structures and market strategies (DiMaggio and Powell 1983). In China, the central (national) government has a favorable orientation toward FDI, yet implementation is often at the provincial level, where foreign investors have to negotiate with local authorities over business licenses, real estate, access to public utilities, and tax incentives (Fan and Wang 2006, Qian 2001). As a result, demised foreign firms in the same region tend to encounter similar risks and share more commonalities than those in different regions (Baum and Mezias 1992, Chang and Xu 2008). Failed foreign subsidiaries in different regions are exposed to different environmental conditions and, as such, are likely to present more problems in constructing valid inferences about the failures than failed foreign subsidiaries located in the same region.

Taken together, we argue that heterogeneity in size, ownership structure, and/or location hinders new entrants from constructing clear and useful inferences to guide their actions in the host market. Thus, a new entrant's learning is hampered, and the full beneficial effect on its survival arising from learning from earlier failures is not felt.

Hypothesis 2 (H2). *The positive relationship between the failure experience of earlier entrants in the*

target industry of the host country and a new entrant's survival chances is weaker when the overall heterogeneity in size, ownership structure, and location of the failed entrants is greater.

Host Country Experience Facilitates Learning. New entrants often differ in ways that cause them to react differently to the same information (Greve 2005, Ingram 2002). Firms generally build on their own relevant experience in absorbing new knowledge available from their environment (Cohen and Levinthal 1990, Hamel 1991). Not having prior relevant experience can make it difficult or even impossible for a new entrant to recognize and integrate new knowledge when entering a new market. This weakens the new entrant's ability to gain an advantage from the information and experience available from its peers' failures.

However, a new foreign subsidiary may have a parent firm with experience in the host market, which can provide the new subsidiary with a general understanding of the host country environment. This base knowledge should help it draw more appropriate inferences from prior FDI failures in the market. As a result, we would expect such new subsidiaries to be more likely to benefit from the experience of earlier entrant failures and to be more likely to survive. By contrast, parent firms with little direct operating experience in the host market may not be able to contribute much to their subsidiaries' ability to fully understand and absorb the experience and knowledge spillovers available from prior FDI failures (Shaver et al. 1997).

Hypothesis 3 (H3). *The positive relationship between the failure experience of prior entrants in the target industry of the host country and a new entrant's survival chances is stronger when the new entrant's parent firm has more prior host country experience.*

Network Ties Facilitate Learning. Network ties facilitate information flow and knowledge sharing, thus enhancing the quality of learning (Greve 1999, 2005; Powell et al. 1996). Learning is more effective among related firms than among unconnected firms (Baum and Ingram 1998, Ingram and Simons 2002). A new entrant's ability to make useful inferences and to benefit from the experience of earlier entrant failures may thus be conditional on its parent firms' ties with failed entrants.

Joint ownership is a network tie that can lead to good information flow and knowledge sharing between partnering firms. For example, Japanese overseas subsidiaries often have more than one Japanese parent (Makino and Beamish 1998). When a firm in an existing, jointly invested venture fails in a foreign market, the other partners involved in the venture are able to access the firm's accumulated experience in that market. Thus, even if a new subsidiary's parent has no direct host country experience, the subsidiary is likely to acquire some useful information and knowledge regarding prior FDI failures in the host market through its parent's partners. These linkages become a useful channel of learning for newly founded subsidiaries. Thus, subsidiaries whose parents have more such ties should have a more useful fund of knowledge at inception, and they thus have a better chance of understanding peer entrants' failures and, accordingly, enjoy better survival chances in the host market.

Hypothesis 4 (H4). *The positive relationship between the failure experience of earlier entrants in the target industry of the host country and a new entrant's survival chances is stronger when the new entrant's parent firm has more ownership ties with other foreign investors who have failed in the host country.*

Methods

Sample and Data Sources

We analyzed data on Japanese firms' direct investments in China from 1979 to 2000 and the survival rate of such subsidiaries to test these hypotheses. China is a suitable setting for these tests because it did not reopen its doors to FDI until 1979. As a result, very few foreign investors had any experience in or in-depth knowledge about this market before this time. The market was thus new and highly uncertain, leading to the prevalence of vicarious learning among foreign investors (Guillén 2002, Li et al. 2007) as a critical means of building knowledge. This period allows us to capture a full history of foreign entrants and their failure experiences in this market, as well as avoid any potential left-censoring.

Japan was one of the earliest and largest foreign investors in China during the study period, behind only the United States and Hong Kong (United Nations Conference on Trade and Development 2001). Every industry in China with a two-digit Standard Industrial Classification (SIC) code for manufacturing received some level of Japanese FDI (except SIC code 21—tobacco and related products). In addition, Japanese firms are known to learn vicariously from the experiences of each other (Henisz and Delios 2001). These features present ideal conditions for testing a new entrant's learning from others' failures. Focusing on Japanese firms' investments in China has important practical implications because China is the world's largest emerging economy and Japan is a leading source country for FDI.

The data on Japanese investments in the Chinese manufacturing sector were extracted from the directory of Japanese firms' foreign expansions, *Kaigai Shinshutsu Kigyou Souran* ("Japanese Overseas Investment"), published by Toyo Keizai. This publication is based on an annual census of Japanese FDIs completed by both Japanese subsidiaries and their listed Japanese parents

(Henisz and Delios 2001). We used the 1980–2001 editions of Toyo Keizai's annual survey to develop a complete history of entries and exits made by Japanese firms in China from 1979 to 2000. We extracted data on Japanese parent firms from the Nikkei NEEDS tapes, which provide comprehensive annual data on the financial, accounting, and demographic situations of Japanese listed firms (Delios and Beamish 2001).

The initial data set comprised 940 Japanese companies that were listed on the Tokyo Stock Exchange at the end of 1979 and whose primary line of business was manufacturing. Of these firms, 357 made a total of 822 direct investments in China during the investigation period. These 822 foreign entries constituted the base sample. During the 22 years of the study period, 132 firms exited the industry. These exits were distributed across 91 parent firms, among which 22 firms made multiple exits from the same industry. We compiled life history information on the 822 Japanese subsidiaries that operated in China between 1979 and 2000.

Dependent Variable

The dependent variable in this analysis, E_{xt}, denotes the unobserved hazard rate for Japanese subsidiary x's cessation of its FDI activity in China at time t. Subsidiary cessations were coded as 1, and surviving Japanese subsidiaries were coded as 0. The duration of each investment was computed as the number of years from its entry into China to the time of its exit. If the subsidiary had not exited, the time period was calculated until the year 2000. The exit years were determined by comparing successive editions of the *Kaigai Shinshutsu Kigyou Souran* directory.

This definition of cessation is consistent with that employed in previous research (Barkema et al. 1997, Delios and Beamish 2001). Business failure (or survival) has received growing research attention as a measure of the long-term performance of FDI (Li 1995, Mitchell et al. 1994), and it has been frequently used in empirical studies on organizational learning (Baum and Ingram 1998, Ingram and Baum 1997, Kim and Miner 2007). In addition, it has been regarded as an appropriate measure of learning outcomes in the context of failure-related experiences (Kim and Miner 2007).

Independent and Moderating Variables

The independent variable, *FDI failure experience before entry*, is a cumulative count of failures of other Japanese subsidiaries in industry i in China, prior to subsidiary x's entry at time t_1, calculated as

$$\sum_{t=t_{i,\text{found}}}^{t_1-1} (Nfailure_{it}),$$

where $t_{i,\text{found}}$ is the year the first Japanese FDI entry was launched in China in industry i and t_1 is the year of the focal subsidiary's entry; $Nfailure_{it}$ is the total number of failures of Japanese subsidiaries during year t in industry i. Importantly, a parent firm's own failures in the industry were excluded in calculating $Nfailure_{it}$.

A subsidiary was considered failed if its operations had ceased or it had been formally dissolved. This definition is in line with that used in previous research on learning from failure (Ingram and Baum 1997, Kim and Miner 2007). Although cessation is not completely identical with failure, one could expect that a foreign subsidiary would remain in operation in the host country if it were still working efficiently (Inkpen and Beamish 1997), particularly since China was growing rapidly during most of the investigation period. Cessation was thus interpreted as indicating at least that the operation was no longer regarded as efficient and viable. Prior studies have shown that business survival (failure) correlates positively (inversely) with financial and satisfaction measures of performance (Geringer and Hébert 1989).

An important consideration in constructing this experience variable is the delimitation of reference firms. The two-digit SIC code was used to capture the peer group of predecessors to which a new entrant may have turned for guidance in interpreting the environment and learning from failure in a foreign country such as China (Guillén 2002, Li et al. 2007). Research has shown that firms can learn effectively from the experience of other firms in related industries (Aldrich 1999, Kim and Miner 2007), which suggests the use of a broad industry definition. Aside from these conceptual reasons, a practical reason is the rarity of failures among any single national group in a single industry. A narrower industry definition at the three- or four-digit SIC code level would have yielded many segments with no failed Japanese firms at all.

For *overall heterogeneity across FDI failures*, our first moderator, we measured causal heterogeneity by creating a composite index in which the three types of heterogeneity, including size, ownership structure, and location, were z-score-standardized (Kohler and Kreuter 2005) and then summed. Greater heterogeneity in any of the three dimensions increased the causal complexity of prior failures.

Size heterogeneity across FDI failures was measured as the standard deviation of the employment of all failed Japanese subsidiaries in the target industry in China before a focal subsidiary's entry, divided by the mean size. We also replaced employment with registered capital to code size heterogeneity and found similar results. There were three types of ownership structures employed by Japanese ventures in our sample: WOS, JV, and acquisition. We employed a Herfindahl index to measure this *structure heterogeneity across FDI failures*. During the study period, Japanese subsidiaries had demises in 20 provinces and 3 municipalities. The numbers in each location vary across industries over time.

Again using a Herfindahl index approach, we computed *location heterogeneity across FDI failures*.

To compute *host country experience before entry*, first note that foreign parents with some direct experience in the host country but no direct experience in the target industry will be more likely to benefit from the experience spillovers offered by earlier FDI failures (Shaver et al. 1997). So to measure the experience of a foreign firm before founding a subsidiary in China, we counted the number of the firm's prior FDIs in China other than in the target industry, including both surviving and failed investments, and took its natural logarithm.

We created a measure, *ownership ties with failed investors before entry*, to reflect how many jointly invested ventures a Japanese firm, before launching a subsidiary in China, had created worldwide with other Japanese investors who had made failed investments in China. We first identified which other firms invested in each subsidiary with the primary parent firm, and we then further traced how many of those connected Japanese firms had previously invested in China and failed. We identified early FDI investors across all industries in China and did not limit our analysis to the specific industry of any one subsidiary.

Control Variables

To measure *FDI operating experience before entry*, we controlled a subsidiary's congenital learning from nonfailure events by counting the years of investment history (Delios and Beamish 2001) by other Japanese firms in the target industry in China that were still surviving immediately prior to the focal subsidiary x's entry. Similar to our main independent variable (*FDI failure experience before entry*), this variable was calculated for companies in the two-digit SIC code industry one year prior to the founding year of the focal subsidiaries.

We measured a firm's postentry learning from the experience of others, *FDI experience since entry*, using (1) *FDI failure experience since entry* and (2) *FDI operating experience since entry*. The former is a cumulative count of FDI failures, and the latter is the count of the differences in the years of investment history by surviving FDIs linked to other Japanese firms in industry i between the year of subsidiary x's entry and the observation year or the year it exited.

Subsidiary and Parent Firm Characteristics. Control variables were included in the models to control for a subsidiary's size, entry mode, and foreign ownership structure (Delios and Beamish 2001, Li 1995). Size was represented by the logarithm of the subsidiary's employment. A subsidiary's entry mode was marked with a dummy variable coded as 1 for joint ventures and as 0 for other entries. The number of foreign investors involved in the subsidiary was included in the models to control for the structure of foreign ownership.

To control for parent firm characteristics, the number of failures accrued by each parent firm in the target industry before subsidiary x's entry was first identified (*own failure experience in the host country industry*). Two types of postentry experience were constructed: host country experience and global industry experience. Specifically, a Japanese firm's prior entries in China were computed as *host country experience*, and its prior entries in the target industry in other foreign countries were computed as *global industry experience*. We also controlled for the parent firm's research and development (R&D) intensity and advertising intensity, both of which may provide an advantage for a firm to compete in a foreign market (Delios and Beamish 2001). Parent size was represented by the logarithm of the firm's annual worldwide sales, and parent age was represented by the logarithm of the number of years that had elapsed since the firm's founding in Japan.

Unobserved differences in firms perhaps might have concealed the learning effects we are testing for here. For instance, weak firms tend to rush into a new market whereas strong firms are generally conservative. The subsidiaries of weak firms normally present lower survival rates than those of strong firms (Aldrich and Fiol 1994). This self-selection of firms in terms of their order of entry has the potential to bias results. Accordingly, we tried to rule out this alternative effect of the concept of "fools rush in" in the following ways.

We first used a firm's records of long-term survival in other markets to control for unobserved firm-level influences on survival probabilities. Stronger firms would presumably have higher survival rates in general, not just in China. *Host country survival rate before entry* was calculated as the ratio of a firm's number of surviving FDIs to its total number of entries in China in industries other than the target industry in the year before subsidiary x's entry. The second survival rate, *world industry survival rate before entry*, was computed as the ratio of a firm's number of surviving FDIs to its total number of entries in the target industry before the year of a focal subsidiary's entry. The first rate was designed to reflect differences in firms' mean survival rates in China, and the second was to capture differences in firms' mean survival rates worldwide, but focusing purely on a subsidiary's target industry.

In addition, we limited the sample to Japanese firms that had previously made a successful investment in China. We then examined whether the later entries of these strong firms had enhanced survival chances. The findings suggest that even entrants with strong parents learned from early entrant failures to enhance their survival rates.

Finally, we conducted both the Heckman two-stage technique (Heckman 1979) and propensity score method to consider a firm's self-selection biases in its foreign entry decision and to evaluate their potential confounding effects on new entrants' survival rates.

Industry and Host Country Characteristics. Models of organizational mortality normally consider competition to be a function of industry density, defined as the number of organizations competing in a defined industry (Hannan and Carroll 1992). Three types of density were considered in this study: *Japanese firm density*, *Chinese firm density*, and *other foreign firm density*, which were measured as the number of active Japanese-invested subsidiaries, the number of living domestic firms, and the number of active foreign subsidiaries (from all nations other than Japan) in the target industry in China at the end of each year, respectively. The logarithms of their linear terms and the square terms were included to account for legitimacy and competition effects (Hannan and Carroll 1992, Ingram and Baum 1997). This density information was obtained from the *China Statistical Yearbook* and the Research Institute of the Ministry of Foreign Trade and Economic Cooperation in Beijing. Using the same data sources, the variables *Japanese firm density at entry time* and *other foreign firm density at entry time* were included to account for the possibility that subsidiaries founded in dense environments may have higher mortality rates. The rationale for this is that organizations founded in dense environments will be forced into less attractive niches and may lack crucial resources at the time of their entry.

Two indicators were constructed to further capture competition among foreign firms both preentry and postentry. *Foreign firm entry rate* was the ratio of the count of new foreign entries to the total number of existing foreign firms in the target industry of the host country in the current year t. Similarly, *foreign firm entry rate at entry time* was the ratio of the count of foreign entries to the total number of foreign firms in the target industry of the host country at the time of subsidiary x's entry. Large values for these variables are expected to be associated with a reduction in the survival rates of new entries.

Organizational ecologists have suggested that prior failures free up resources, thus enhancing the viability of the surviving organizations and lowering their mortality rates in the next period (Carroll and Delacroix 1982). We used the number of Japanese FDI failures in the prior year (*Japanese FDI failures at prior year*) to account for this effect in our models.

Annual industry sales were also included in the models to account for the carrying capacity of the industry. This variable was coded in RMB billions based on data from the *China Statistical Yearbook*. A greater sales volume was expected to be positively correlated with Japanese subsidiary survival. Industry fixed effects and two period dummies were included to account for time-varying socioeconomic conditions not captured by the other control variables. The years 1989 and 1990 were coded as 1 to represent the political disturbances that took place in China in 1989. The other period indicator aimed to capture the influences of the 1997 Asian financial crisis, with 1 representing the years 1997 and 1998.

Modeling

As 84% of the Japanese subsidiaries in the study sample (132 exits among 822 entries) were right-censored, we used event history analysis to estimate the failure rate (Allison 1999). We estimated the mortality rate of Japanese subsidiaries in China as an instantaneous rate, $r(t)$. An important concern when modeling such hazard rates is the assumption of an appropriate specification for the duration (age), as this depends on the time of failure. Previous empirical studies on vicarious learning (Baum and Ingram 1998, Ingram and Baum 1997, Kim and Miner 2007) have used flexible piecewise exponential models that allowed the failure rates to vary in an unconstrained way over predefined age segments while remaining constant within each segment (Blossfeld et al. 2007). In this way, no strong assumptions need to be made about the functional form of the hazard rate. This approach is appropriate because it enables us to isolate the effects of firm age and varying experience types, both of which are often highly correlated with time since founding.

To be consistent with previous empirical research (Baum and Ingram 1998, Ingram and Baum 1997, Kim and Miner 2007) and to make the findings comparable, we adopted a piecewise exponential model. The piecewise exponential specification was implemented by adding a user-defined routine (*stpiece*) in the statistical package STATA (Blossfeld et al. 2007). In the sensitivity analyses, we also estimated models using other parametric specifications that are commonly used in organization research (the exponential and Gompertz specifications). Additionally, we estimated models using discrete time logit analysis and a Cox proportional hazards approach. The results of these different approaches were consistent with the results of our reported piecewise specification.

To estimate this model, the base sample of 822 Japanese investments in China was expanded into 4,992 subsidiary-year spells in which at least one subsidiary was at risk of exit. This multiple-spell formulation facilitated the inclusion of time-varying covariates. Each spell was considered right-censored unless an exit occurred (Baum and Ingram 1998). Once the baseline sample was identified, other subsidiary- and firm-level data were added, along with host country and industry control variables. Because the independent and control variables in the models were lagged by one year, one year of observation was lost for each subsidiary. In addition, we excluded those subsidiaries that entered China when there was no any prior FDI failure available in the target industry. The final analysis included 617 subsidiaries (after accounting for missing data), of which 64 had exited by the end of 2000. These procedures yielded a total of 3,587 subsidiary-year observations.

Results

The descriptive statistics and bivariate correlations of all the variables in the analysis (reported in the electronic

companion, available as supplemental material at http://dx.doi.org/10.1287/orsc.2015.0967) show that the correlations for some of the experience variables are in the moderate to high range. For instance, *FDI failure experience before entry* correlates with *FDI operating experience* at 0.84. Similar correlations between failure and operating (or success) experience have appeared in a number of previous studies (Ingram and Baum 1997, Kim and Miner 2007, Madsen and Desai 2010). Although the experience variables were highly correlated, the measures reflect theoretically different types of experience. Omitting a measure without any prior theoretical justification would introduce specification errors, which is a much more serious matter than multicollinearity (Greene 2000).

Multicollinearity may inflate standard errors and lower the efficiency of parameter estimates, particularly when sample sizes are small, but it will not bias parameter estimation (Cohen and Cohen 1983). We followed the approach used in previous vicarious learning studies (Ingram and Baum 1997, Kim and Miner 2007) and estimated the models by incrementally adding the theoretical variables of interest. This permitted us to carefully examine for instability in the coefficients. Low levels of instability in the coefficients indicate that multicollinearity was not a serious consideration. In the case of inflation, this approach allows us to test the significance of groups of variables by comparing nested regression models instead of relying solely on significance tests for individual coefficients (Kmenta 1971).

Hypothesis Testing

Table 1 presents the coefficients and significance tests for six piecewise exponential model specifications. The variables and their interactions were added sequentially. Model 1 includes the control variables and the three main moderators. Model 2 adds the main effect of prior FDI failure experience before entry. Model 3 adds the interaction between prior FDI failure experience and the composite measure of causal heterogeneity across failures. Models 4 and 5 include the interactions between prior FDI failure experience and host country experience and between prior FDI failure experience and ownership ties with failed investors prior to entry, respectively. Adding these two interactions to Model 3 leads to Model 6. The changes in the χ^2 values indicate that this sequence of model building significantly improved model fit.

Hypothesis 1 predicts that the survival of new entrants would be positively related to the experience of previous FDI failures. The coefficients of the variable *FDI failure experience before entry* were negative across all models and significant in Models 2, 3 and 6. These results provide clear support for Hypothesis 1.

Hypotheses 2–4 predict moderating effects on the relationship in Hypothesis 1. These predictions are tested in Models 3–6 in Table 1, in which the interaction between *FDI failure experience before entry* and the composite index of overall heterogeneity is positive and significant, supporting H2. This result supports the idea that the value of learning from a group of failures depends on the extent of causal heterogeneity of the failure experience.

In Models 4–6, we found a significant interaction between ownership ties and prior FDI failure experience. This finding supports H4. However, the interaction between parent host country experience before entry and prior FDI failure experience was not significant. Thus, Hypothesis 3 was not supported. This result points to the complex interactions that can exist between an organization's learning from its own experience and its vicarious learning from others' failures.

It is also important to consider the magnitudes of observed effects. Magnitudes for the coefficients of piecewise exponential models can be assessed by translating them into multiplier rates ($e^{\beta x}$), expressing the likelihood of a new foreign subsidiary's exit while holding all the other variables constant. The relative magnitudes of the moderating effects of causal heterogeneity across FDI failures and ownership ties before entry can be illustrated using the significant coefficient estimates in Models 3 and 5, as shown in Figures 1 and 2.

Figure 1 depicts how the relationship between early FDI failure experience and the mortality hazard for a new foreign entrant varies as prior FDI failure experience increases in its levels of overall heterogeneity in size, ownership structure, and location. The upper curve shows that the hazard multiplier decreases by 89% as the variable *prior FDI failure experience* ranges from its mean to its mean plus one standard deviation, holding all other independent variables constant at their mean levels. With all else remaining equal, the lower curve shows that the hazard multiplier drops by 99% when the overall heterogeneity of prior FDI failures is one standard deviation below its mean.

Following the same approach, Figure 2 illustrates that when *prior FDI failure experience* varies from its mean to one standard deviation greater, the hazard multiplier drops by 73% for subsidiaries whose parents had a mean level of ownership ties. However, for subsidiaries whose parent firms had ties two standard deviations more than the mean, the decrease was 86%.

Although control variables were not our theoretical focus, they demonstrated results that were generally consistent with our expectations from prior research. The coefficients on *FDI operating experience before entry* were positive but not statistically significant. This is consistent with Kim and Miner's (2007) finding and may suggest that new entrants did not necessarily gain survival benefits simply by learning from the operating experience of earlier entrants. This might further suggest that learning from the experience of operating firms is

Table 1 Piecewise Exponential Estimation of the Exit Rate of Japanese Manufacturing Subsidiaries in China, 1979–2000

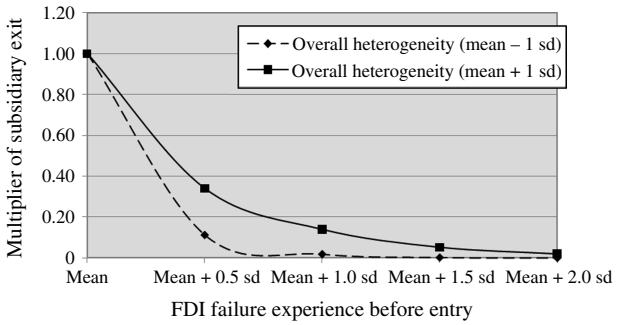
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Est.	se	Est.	se	Est.	se	Est.	se	Est.	se	Est.	se
Research variables												
FDI failure experience before entry			−0.23†	0.13	−0.56**	0.19	−0.19	0.14	−0.18	0.14	−0.52**	0.20
FDI failure experience × Overall heterogeneity across FDI failures					0.08**	0.03					0.09**	0.03
FDI failure experience × Host country experience before entry							−0.02	0.03			0.00	0.03
FDI failure experience × Ownership ties with failed investors before entry									−0.01*	0.00	−0.01*	0.00
Overall heterogeneity across FDI failures	−0.15	0.11	−0.02	0.13	−0.02	0.14	−0.03	0.14	−0.01	0.14	−0.02	0.14
Host country experience before entry	0.43	0.33	0.39	0.33	0.40	0.33	0.59	0.44	0.59†	0.34	0.64	0.44
Ownership ties with failed investors before entry	0.04†	0.02	0.04†	0.02	0.04	0.02	0.04	0.02	0.13**	0.04	0.13**	0.04
Other experience variables												
FDI operating experience before entry/10^3	0.75	2.35	4.72	3.18	4.38	3.35	4.90	3.17	4.37	3.17	3.75	3.37
FDI failure experience since entry	0.01	0.03	0.00	0.04	−0.01	0.04	0.00	0.04	0.00	0.04	0.00	0.04
FDI operating experience since entry/10^3	0.06	1.45	0.47	1.50	0.41	1.49	0.46	1.50	0.48	1.51	0.43	1.49
Subsidiary controls												
ln(*Subsidiary size*)/10	−0.08	0.10	−0.08	0.10	−0.08	0.10	−0.08	0.10	−0.05	0.10	−0.05	0.10
Number of foreign investors	0.13	0.22	0.12	0.22	0.10	0.22	0.12	0.22	0.13	0.22	0.11	0.22
Entry mode (JV = 1)	−0.33	0.35	−0.33	0.35	−0.42	0.35	−0.34	0.35	−0.38	0.35	−0.47	0.36
Parent firm controls												
Own failure experience in the host country industry	−0.12	0.39	−0.27	0.40	−0.40	0.42	−0.24	0.40	−0.29	0.42	−0.44	0.44
Host country experience	−0.06	0.18	−0.06	0.18	−0.07	0.19	−0.06	0.18	−0.08	0.18	−0.09	0.19
Global industry experience	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
R&D intensity	2.60	5.60	2.05	5.63	1.54	5.48	2.63	5.69	1.98	5.80	1.49	5.75
Advertising intensity	5.35	7.49	5.44	7.59	7.63	7.97	5.39	7.55	5.76	7.61	8.50	7.95
ln(*Firm age*)	−0.56	0.48	−0.61	0.49	−0.53	0.49	−0.60	0.49	−0.62	0.49	−0.58	0.49
ln(*Firm size*)	−0.07	0.16	−0.06	0.16	−0.07	0.16	−0.07	0.16	−0.08	0.16	−0.09	0.16
Host country survival rate before entry	−0.08	0.53	−0.05	0.53	−0.05	0.53	−0.17	0.57	−0.39	0.56	−0.43	0.58
World industry survival rate before entry	2.93	2.14	3.11	2.20	3.06	2.25	3.25	2.22	4.01†	2.31	4.05†	2.40
Environmental controls												
Japanese firm density	−0.85†	0.49	−0.82†	0.49	−0.93†	0.49	−0.81†	0.49	−0.80	0.50	−0.91†	0.51
Japanese firm density^2	0.11	0.08	0.10	0.08	0.12	0.08	0.10	0.08	0.09	0.08	0.11	0.08
Other foreign firm density/10^2	0.18*	0.08	0.20*	0.08	0.23**	0.08	0.20*	0.08	0.19*	0.08	0.22**	0.08
Other foreign firm density^2/10^6	−0.08*	0.04	−0.09*	0.04	−0.10**	0.04	−0.09*	0.04	−0.09*	0.04	−0.10*	0.04
Chinese firm density/10^4	0.28	0.60	0.09	0.61	0.04	0.62	0.09	0.61	0.13	0.61	0.06	0.62
Chinese firm density^2 /10^8	−0.03	0.04	−0.02	0.04	−0.02	0.04	−0.02	0.04	−0.02	0.04	−0.02	0.04
Japanese firm density at entry time/10^2	0.69	0.67	0.67	0.74	1.37†	0.80	0.62	0.74	0.85	0.74	1.66*	0.82
Other foreign firm density at entry time/10^3	−0.44*	0.19	−0.55**	0.20	−0.72***	0.22	−0.56**	0.20	−0.60**	0.20	−0.78***	0.23
Foreign firm entry rate at entry time	−0.31	2.10	−1.16	2.16	−1.07	2.19	−1.15	2.16	−1.19	2.21	−1.15	2.23
Foreign firm entry rate	4.46	3.17	4.33	3.34	4.23	3.37	4.40	3.34	4.22	3.35	4.15	3.38
Japanese FDI failures at prior year	−0.08	0.09	−0.08	0.10	−0.09	0.11	−0.08	0.10	−0.08	0.10	−0.10	0.11
Industry sales	−5.58	3.61	−6.23†	3.82	−7.15*	3.70	−6.17†	3.83	−6.30†	3.87	−7.17*	3.73
1989 political disturbance	−10.88	939.61	−10.61	968.96	−9.69	699.03	−10.56	959.87	−9.81	716.47	−9.57	716.19
1997 Asia financial crisis	0.88*	0.44	0.78†	0.45	0.77†	0.45	0.78†	0.45	0.79†	0.45	0.78†	0.45

Table 1 (cont'd)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Est.	se	Est.	se	Est.	se	Est.	se	Est.	se	Est.	se
Piecewise periods												
Age 0–7 years	−8.45*	3.69	−8.29*	3.71	−8.17*	3.76	−8.67*	3.76	−9.23*	3.75	−9.14*	3.87
Age 8–9 years	−8.56*	3.73	−8.31*	3.74	−8.38*	3.79	−8.69*	3.80	−9.14*	3.78	−9.26*	3.90
Age ≥ 10 years	−9.30*	3.82	−8.93*	3.83	−9.12*	3.88	−9.26*	3.87	−9.66*	3.87	−9.89*	3.98
Log likelihood (df)	−181.1 (44)		−179.3 (45)		−175.6 (46)		−179.1 (46)		−176.6 (46)		−172.3 (48)	
χ^2 change (df)			3.6† (1)		7.4** (1)		0.4 (1)		5.4* (1)		14** (3)	
Baseline model			Model 1		Model 2		Model 2		Model 2		Model 2	

Notes. $N = 3{,}587$; 617 subsidiaries with 64 exits. Parameter estimates and standard errors are shown. Industry fixed effects are not reported.
†$p \le 0.1$; *$p \le 0.05$; **$p \le 0.01$; ***$p \le 0.001$ (two-tailed tests).

Figure 1 Moderating Effect of Overall Heterogeneity in the Relationship Between Prior FDI Failure Experience and Foreign Subsidiary Exit



challenging because they are still competing in the market. Neither *FDI failure experience since entry* nor *FDI operating experience since entry* showed a significant relationship, which is consistent with the organizational ecology perspective that learning from others' experience before entry is more beneficial than learning from experience after entry (Argote et al. 1990).

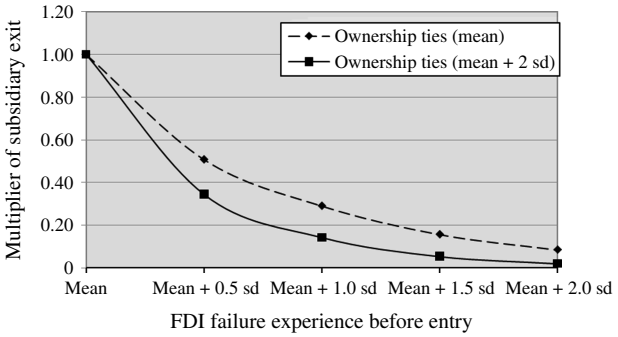
As expected, the linear term associated with *Japanese firm density* was negative and significant, demonstrating a legitimacy effect. *Other foreign firm density* had a significant positive effect on the failure rate of new entrants, demonstrating a strong industry competition effect. Its square term was negative and significant in all models, suggesting a legitimacy spillover effect. In addition, *other foreign firm density at entry time* was associated with a reduced exit hazard. One explanation is that in the Chinese context, an environment dense with many non-Japanese foreign firms would not necessarily deplete the resources needed by new Japanese firms at the time of founding. Instead, such density hints at a more favorable environment that offers more legitimacy and opportunities to FDIs. Larger annual industry sales predicted enhanced survival rates for new foreign subsidiaries. The failure rates of new entrants increased during the period of Asian financial crisis, but not during the 1989–1990 period in China.

Robustness Checks and Alternative Explanations

This study links experience to organizational outcomes but without examining directly the intermediate step of learning. Thus, we carefully conducted a number of robustness checks to rule out alternative explanations for the observed effects of earlier entrant failures on survival rates.

We first discounted past experience to account for the depreciating value of FDI failure experience over time and decomposed the composite measure of causal heterogeneity. We then run additional analyses to reduce the concern that the alternative factors, such as market competition and learning of Chinese firms and government, might have confounded our results. Finally,

Figure 2 Moderating Effect of Ownership Ties in the Relationship Between FDI Failure Experience and Foreign Subsidiary Exit Rates



we conducted the two-stage Heckman selection analysis (Heckman 1979), propensity score approach, and instrumental variables method to check selection bias and control for other sources of endogeneity (Bascle 2008). These robustness analyses (available in the electronic companion) do not yield substantively different results from the piecewise exponential estimation (see Table 1). The implications of our empirical results remain the same. These tests provide evidence that the selection and endogeneity problems do not confound the learning arguments we develop in this paper.

Discussion

This study demonstrates that late entrants can benefit from the failures of prior entrants in their industry. Causal heterogeneity across failures, and the new entrants' parents' ownership ties prior to entry, significantly enhanced the benefits that new entrants gain from learning about prior FDI failures. Thus, late-entering firms differ in the extent to which they learn effectively from early movers' failures, and this disparity affects their survival rates.

This study contributes to learning research in three ways. First, our study confirms that congenital learning from early entrants' failures is critical to an organization's success (Argote et al. 1990, Cyert et al. 1993). We drew on the vicarious learning framework to enhance our understanding of disparities in firms' congenital learning. We hence extended this framework, which has reflected learning between established firms based on their operating experiences, into the preentry stage, and we uncovered complex learning dynamics that can exacerbate or impair the benefits of learning from early-entrant failures.

Our study complements ideas that consider congenital knowledge as being mainly inherited from the founders or key employees of a new firm (Agarwal et al. 2004, Dencker et al. 2009). It implies that congenital knowledge also comes from a new firm's congenital learning, which serves as an important channel that links the experience of peer firms' failures with the outcomes for a new firm. This makes identifying disparities in new entrants' congenital learning important for understanding when they achieve late-mover advantages.

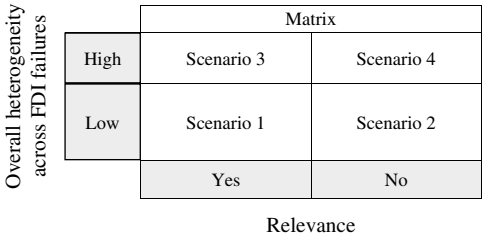
Second, this study has integrated the literature on vicarious learning from failures (Ingram and Baum 1997, Kim and Miner 2007, Miner et al. 1999) with research on learning from complexity (Beckman and Haunschild 2002, Haunschild and Sullivan 2002, Rhee et al. 2006), extending and contributing to both lines of inquiry.

Previous research has compared the relative impacts of different types of failure-related experience, including small and large failures, failures in the same and different locations, failures in the same and related industries, and near failures (Ingram and Baum 1997, Kim and Miner 2007, Miner et al. 1999). Yet these studies focused on the salience, relevance, and magnitude of individual failures; they did not consider the compositional characteristics of the failures. Although the experience of each failure can be valuable, experience in aggregate is complex. Our study demonstrates that failures with high causal heterogeneity exert lower levels of knowledge and spillover benefits to new entrants' learning. It thus contributes to the growing body of work on how and when organizations can learn from others' failures (Kim and Miner 2007, Madsen and Desai 2010).

Our finding also contributes to the debate on learning from complexity (Beckman and Haunschild 2002, Haunschild and Sullivan 2002). New firms attempting to learn from failure experiences have to derive hypothetical inferences on underlying causality and then formulate solutions. Substantial heterogeneity in failures indeed hinders such self-derived inferential learning and reduces learning quality. Two obstacles exist concerning how heterogeneity hinders learning: (1) difficulty in identifying and understanding the primary or common causes of the failures, if there are any, and (2) attempts to view heterogeneous failures as being the result of random and firm-specific causes. In addition, new firms, in contrast to established firms with formalized structures and routines, are subject to few constraints and tend to engage in more explorative learning to find novel solutions (Hannan and Freeman 1984). This implies that if there is a chance that heterogeneity can generate better interorganizational learning outcomes, it is more likely during firms' preentry stage.

If learning from homogeneous experience and learning from local relevant experience are both effective, one might wonder whether the two are equally effective in the context of our study. If not, which one is more dominant? We conducted further analyses to differentiate the learning effects in a scenario where the failure experience is nonlocal but homogeneous from that in another scenario where local and nonlocal experience both exist but the experience is highly heterogeneous. Specifically,

Figure 3 Matrices Depicting the Interactions Between Learning from Homogeneity and Learning from Relevant Experience



Notes. Relevance is coded as "Yes" if any prior FDI failures were in the same location, if any prior FDI failures used the same entry mode, or if any prior FDI failures were of the similar size. Otherwise, relevance is coded as "No."

we created a set of 2×2 matrices (see Figure 3) to depict the interplay between learning from homogeneity and learning from local relevance, as the experience heterogeneity and relevance vary.

In Figure 3, the scenario 2 quadrant shows that all prior FDI failures had a low degree of overall heterogeneity yet were found to be different from a focal new subsidiary. By contrast, the scenario 3 quadrant shows that prior FDI failures had a high degree of overall heterogeneity, but some failures were considered relevant by a focal new subsidiary. Clearly, the learning dynamics between scenarios 2 and 3 would be different, as the former captures more effects in learning from homogeneity but less in learning from relevance, whereas the latter captures more effects in learning from local relevance but less in learning from homogeneity. The results (available in the electronic companion) show that the effects of learning from homogeneity in the scenario 2 quadrant are generally greater than that of learning from relevance in the scenario 3 quadrant.

We explain this result by turning to the characteristics of this study's design. In a context of congenital learning, new subsidiaries were not yet fully established and still in the process of contemplating how to enter the host market. As such, they were more likely to engage in a broad search and in explorative learning than those established firms that tend to engage in narrow search and focused learning. Hence, the principal of learning from local relevance, verified mostly from prior studies on established organizations post entry, may be less applicable in this study's context.

Third and finally, this study extends prior research on networks and learning by showing that network ties with demised firms prior to a new subsidiary's founding facilitate its learning from peers' failures. We corroborate previous research concerning how networks improve a firm's decision quality and performance (Beckman and Haunschild 2002). Previous research, however, looked at network ties among established firms. We focused on the network ties of a new firm's owners prior to its founding and verified the importance of ties in congenital learning. This highlighting of preentry network ties marks such networks as an important source of variation that influences the learning effectiveness and life chances of new firms.

Moreover, the lack of an observable influence of host country experience suggests that, in contrast to the network ties with demised peer firms, parents' own host country experience is less useful in facilitating their new subsidiaries' learning from peers' failures. This study demonstrates that having an informative and experienced partner could be more useful than being experienced in the context of learning from others' failures.

Future Research

We considered the impact of previous FDI failures regardless of the nature of the failed entrants. This approach was dictated by data limitations as well as by the lack of a clear theory to guide an operationalization to delimit the boundary of the knowledge spillovers from failures (Ingram 2002). Refining the measures of failure experience and identifying causes and types of failure in future research could enhance our understanding of which particular types of failure are most relevant for improving new entrants' performance. As a step in that direction, future work might follow the two broad category approaches found in Mitchell et al. (1994) and differentiate between failures resulting from incorrect choices of the market and those resulting from poor management after start-up.

In addition, this study focused on the relationship between prior failures and new entrants' survival chances, while not fully considering the influence of successful or high-performing entrants. Our results suggest that in this study's emerging economy context, learning from early entrants' failure experience is more valuable than learning from early entrants' operating experience. This might be because prior entrants' operating (success) experience is likely to depreciate faster than failure experience (Madsen and Desai 2010). Even though this study failed to identify any significant learning from operating (success) experience, we do not discount the possibility that it may occur in other settings. Future work can extend this idea by providing a direct comparison of the magnitude of experience decay and effectiveness of preentry learning from failure versus learning from success.

Conclusion

This study integrated ideas of congenital knowledge, vicarious learning from failures, and organizational survival to understand how new firms differ in learning from the failure experience of earlier entrants and how such learning disparity predicts the new firms' survival chances. This study demonstrates that early entrants'

failures hurt, but new entrants are able to learn and benefit from the experience if the failures are not too causally heterogeneous or the new entrants have network ties with the failed entrants. Our findings confirm that a rare event such as a prior entrant failure can play a valuable role in improving the performance of newly entering firms and helping them achieve late-mover advantages. Yet the occurrence of such congenital learning is subject to conditions, such as the compositional characteristics of the failures and the network connections between the sending and receiving organizations. Collectively, the findings of this study underscore the need to further explore congenital learning practices associated with failure and to determine the boundary conditions when later entrants can achieve late-mover advantages by reaping the benefits of early entrants' failure, without exposing themselves to the costs of the failure.

Supplemental Material

Supplemental material to this paper is available at http://dx.doi.org/10.1287/orsc.2015.0967.

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