

**Institutional Structures, Organizational Learning, and  
Sequential Foreign Expansion: South Korean Firms  
and Business Groups in CHINA, 1987-1995**

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INSTITUTIONAL STRUCTURES, ORGANIZATIONAL LEARNING,  
AND SEQUENTIAL FOREIGN EXPANSION:  
SOUTH KOREAN FIRMS AND BUSINESS GROUPS IN CHINA, 1987-1995

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**Abstract**

This paper proposes to treat a firm's foreign expansion as a process of organizational learning shaped by institutional structures in addition to economic variables at the firm, industry, and country levels. An analysis of the expansion of South Korean manufacturing firms into China between 1987 and 1995 shows that business group experience and emerging institutional norms in the organizational field increase the rate of foreign expansion. Organizational learning variables significantly contribute explanatory power to the model above and beyond economic variables. While the previous experiences of the firm and of other firms in the same group are mutually reinforcing, institutional effects in the home country tend to disappear after firms make their first entry into the foreign country. The implications for the institutional analysis of repeated organizational events are discussed.

## INTRODUCTION

The study of why and how firms go abroad in search for markets and production opportunities has been rarely undertaken by organizational scholars. Such research questions have long remained the province of economics and international management (Ghoshal and Westney 1993; Delacroix 1993). Yet, multinational firms are among the most ubiquitous and powerful organizations in the world. The United Nations Organization estimates that there are 38,747 organizations which qualify as multinationals—i.e. companies with operational investments in at least one foreign country in addition to their home country. That number includes a myriad of mid-sized firms with international operations but fewer than 2,000 employees worldwide as well as the giant multinationals with over 100,000 employees. The importance of multinationals is hard to underestimate. The worldwide revenues of the 38,747 multinationals and their 265,551 worldwide affiliates amount to a figure similar to that of world exports of goods and services. As much as one third of international trade takes place within multinationals—i.e. between two of their organizations located in different countries—and about 80 percent of the total international payments for technological royalties and fees occurs within multinationals. The largest 500 multinationals account for roughly 25 percent of the world's gross product and over 50 percent of world trade (UNCTD 1996:xiv, 8-9, 1994:xxi-xxii).

The literature on the foreign activities of firms has traditionally been heavily focused on economic variables at the firm, industry, and country levels of analysis. This paper builds on recent theories about the international expansion of firms by bringing the institutional and ecological environment in within a framework of organizational learning.

The foreign expansion of a firm is treated as a learning process by which the organization incorporates elements of the experiences of both itself and other relevant organizations in its environment.

Modern economic theory of the multinational enterprise began in the 1960s by approaching foreign investment not as a capital movement but as the result of a firm's decision to go abroad on the basis of advantages related to market and industry structures in its home country (Hymer 1976). Economists argued that firms become international to the extent that they can draw upon sources of monopoly power such as technology or marketing skill. This tradition of research has long posited and empirically demonstrated that firms which are large in size, possess intangible technological and marketing assets, compete in moderately concentrated industries or are confronted with certain changes in home country factor costs or currency exchange rates are more likely to go abroad in search of markets and production opportunities than others (Caves 1996; Dunning 1993). Building on these insights, transaction cost economics has also made a contribution by proposing a framework to understand under what conditions firms internalize their home-grown advantages when they engage in business activities across national borders (Hennart 1982).

Limited organizational insights were not taken into account in the study of foreign investment until international management researchers began to approach the expansion of firms beyond their home countries as an incremental and sequential process. Aharoni (1966) suggested that the firm's stock of knowledge prior to investing abroad is not very relevant to foreign investment decisions, and that the costs of searching for useful information are relatively high. According to sequential expansion theory, firms take

progressively bolder steps starting with arms-length exports from their home country and gradually shifting to opening sales subsidiaries and to establishing production plants in foreign markets (Johanson and Vahlne 1977; Vernon 1979). The last few years have witnessed a revival of sequential theories of foreign expansion. This line of research has argued, and found empirical support, for the proposition that firms can better adapt to rapid environmental change of the macroeconomic kind if they have previously established a presence abroad (Campa 1993; Kogut and Kulatilaka 1993; Kogut and Chang 1996).

While sequential foreign expansion theory has incorporated the notions of organizational learning and capability building, little has been done to address how organizational environments as opposed to macroeconomic ones affect rates of foreign expansion (for partial exceptions, see: Barkema et al. 1996; Chang 1995; Pennings et al. 1994). Organizational environments are shaped by the activities of the very organizations that operate in them. As Levitt and March (1988) noted, organizations not only learn from their own direct experience but also from the experience of others.

This paper uses insights from institutional theory and population ecology to elucidate how the structure of the learning environment in the home country affects foreign expansion, and also to evaluate whether firms with an established foreign presence are subject to the same home-country institutional influences as purely domestic firms or not. The hypotheses derived from this approach are tested with data on the sequential establishment of manufacturing plants by South Korean firms in China between 1987 and 1995. The next section presents an organizational approach to the sequential expansion of firms into foreign countries. The third and fourth sections

describe the data and methods, and present the empirical results. The last section discusses the implications for institutional research on repeated organizational events.

## **ORGANIZATIONAL LEARNING AND SEQUENTIAL FOREIGN EXPANSION**

Organizations are born into specific country settings. Their features and behavior have much to do with the institutional conditions present at the time of founding, and with how such conditions evolve over time. Recent cross-national organizational research underlines that firms and organizational practices are creatures of the home-country institutional environment in which they originate (Gerlach 1992; Guillén 1994; Hamilton and Biggart 1988; Whitley 1992). Nevertheless, organizations in general—and manufacturing firms in particular—are not constrained by country boundaries. In a world of interdependent nation-states and increasing globalization, firms go abroad so as to access new markets for their products, source raw materials, employ a labor force of the desired quality and cost, and/or acquire such precious intangible assets as technology or marketing skill.

### **Learning to Expand Abroad**

The learning view of foreign expansion adopted in this paper takes the basic economic model of foreign investment as the point of departure. Economic theory makes fairly straightforward predictions as to the effects of firm, industry, and country-level economic variables on the likelihood that firms will commit resources to foreign operations. In particular, the likelihood of going abroad is expected to increase with the firm's size and technological resources, moderate degrees of industry concentration in the

home country, the attractiveness of the foreign country and market, the comparative level of factor costs at home, and the overvaluation of the home country's currency (Caves 1996; Dunning 1993).

Above and beyond the predictions of the economic model, the learning approach presented here turns the organizational and sociological processes underlying foreign expansion into the centerpiece of the explanation of why some firms decide to go abroad, and why some of them do so more often than others. While organizations are creatures of the institutional environment in the home country, they behave as active players not passive pawns, learning from experience. Organizations go abroad on the basis of relevant information available in the vicinity of already existing knowledge. Organizational decisions are informed and shaped by the ways in which such knowledge is accumulated and socially constructed through the allocation of organizational attention and memory (Ocasio 1997). Therefore, organizations respond to environmental stimuli in a variety of ways depending on their own characteristics and on their position relative to other organizations (Miner and Haunschild 1995; Scott 1995:51, 118, 132; Kogut and Zander 1993; Oliver 1991; Levitt and March 1988).

The learning approach employed in this paper revolves around the distinction between "exploitation" of existing organizational routines or capabilities and "exploration" of new ones (March 1991). While exploitation or reproduction of current routines and capabilities is necessary for an organization to survive and thrive over time, a certain dose of exploration may be required if the organization is to avoid becoming obsolete. This distinction is relevant to the study of multinationals because so much of the existing literature documents that a firm's first steps in foreign expansion require the

accumulation of knowledge that is different from the one useful in the home country (Aharoni 1966; Johanson and Vahlne 1977; Dunning 1993). If the initial steps in foreign expansion are about discovering and realizing new opportunities, and about dealing with an entirely new set of such stakeholders as suppliers, workers, regulators, and customers, then organizations that are more prone to exploring rather than exploiting would be more likely to set up production capacity abroad. The goal of this section is to formulate hypotheses at the firm and inter-organizational levels that make predictions as to which organizations would be more likely to experience exploratory learning leading to foreign expansion.

At the firm level, previous organizational theories suggest that, above and beyond economic variables, age and prior organizational experience shape the firm's need and ability to explore. Both international management and population ecology theories suggest that a firm's age will affect its ability to learn new routines and capabilities, i.e. to explore and realize opportunities for foreign expansion. An ecologically-informed learning view of sequential foreign expansion has to take into account that organizations are subject to different mixes of the liabilities of newness and of age (Stinchcombe 1965; Hannan and Freeman 1984, 1989; Delacroix 1993). These liabilities affect not only the chances of organizational survival but also the probability that the firm will adopt innovations or make important changes in its structure or behavior, i.e. engage in exploration (Fligstein 1985, 1990). When organizations are born, their chances of survival and growth are ill-defined and likely slim. To the student of foreign expansion, the liability of newness suggests that before organizations can even consider

opportunities abroad, they must learn to survive in their country of origin, i.e. exploit current routines and capabilities at home.

As organizations prove adaptive, however, they may develop another kind of liability associated with success and increasing age. Entrenched intraorganizational interests, practices, and myths about how to get the organization's work done will produce structural inertia, an aversion or inability to explore and/or adapt to changing circumstances. The learning literature has highlighted how firms may fall into "competency traps" or "lock themselves out" from useful departures or innovations as they persist in turning their own experience into organizational routines and memory (Levitt and March 1988; Cohen and Levinthal 1990; March 1991). It is hard to think about a departure from an organization's traditional practices more momentous than the decision to establish a manufacturing plant abroad. Thus, older organizations may find it difficult to perceive and realize foreign opportunities because of structural inertia. Given the conflicting effects of the liabilities of newness and age on the international expansion of firms, one would expect the likelihood of foreign entry to increase with age at a decreasing rate, eventually leveling off and falling as organizational inertia takes its toll. Therefore,

Hypothesis 1: Controlling for industry and firm size, the relationship between a firm's age and its rate of establishment of plants in a foreign country follows an inverted U-shaped curve.

The organization's previous experience with foreign expansion is also a critical learning factor at the firm level. Historical case studies and large-sample empirical research have documented that, in response to economic factors, firms do not become

full-blown multinationals overnight. Rather, they pursue international opportunities for expansion in highly selective and cautious ways because of the difficulty of gathering knowledge about conditions in foreign countries. Thus, the process of foreign expansion tends to be an incremental one because firms can only build up their capabilities and knowledge over time as they accumulate experience, domestically and internationally. Given that organizations tend to be biased towards exploitation (Miner and Haunschild 1995), firms that explore new locations for manufacturing and manage to accumulate the requisite knowledge would be expected to be in a better position to exploit that knowledge subsequently when considering the establishment of further foreign manufacturing facilities.

Even though Teece (1977) found evidence that the costs of transferring technology and expertise to a foreign country decrease with subsequent entries, only a handful of empirical studies on foreign investment have used a knowledge-based approach to argue that firms use their first investment in a foreign country as a “platform” for future activities (Kogut and Kulatilaka 1993; Kogut and Chang 1996; Chang 1995). Such platforms allow the firm to gather first-hand information about the foreign country, and facilitate expanding capacity, establishing new plants, or acquiring local firms. Thus,

Hypothesis 2: As firms establish plants in a foreign country, they become more likely to set up further facilities in that country.

A basic premise of the organizational learning literature is that learning is shaped by the context in which it occurs. Firms learn from their previous experiences and from the experiences of others. In both cases, their position in relevant social structures will affect what is learned and how it is interpreted (Levitt and March 1988; Cohen and

Levinthal 1990). Recent international research has observed the counter-intuitive fact that learning about foreign expansion is overwhelmingly shaped by the institutional context in the home country of the firm, especially before the first foreign entry is made (Kogut 1993). Organizational theory has long argued for the enduring influence of institutional “imprinting” effects dating back to the creation of the firm (Stinchcombe 1965). Firms start pursuing opportunities beyond their home country depending on the environment surrounding them. More specifically, Miner and Haunschild (1995) argue that learning at the level of clusters, networks and/or fields of organizations is more likely to emphasize exploration over exploitation when compared to the learning that goes on at the level of the single organization. The reason lies in that such supra-organizational realms as clusters, networks, and fields are less hierarchical, incentive-driven, and cohesive than organizations themselves, and therefore lend themselves more easily to exploration.

Interorganizational ties provide channels for the transfer of information and the sharing of experience, thus creating opportunities for learning beyond the daily reproduction or exploitation of existing routines. Several previous studies have shown that organizations sharing a director on their boards, holding a stake in each other’s equity or depending on the same sources for critical resources tend to adopt similar patterns of behavior (Davis and Greve 1997; Westphal et al. 1997; Scott 1995:120-123; Burns and Wholey 1993; Haunschild 1993; Baum and Oliver 1992; Davis 1991).

In many countries, “business groups” are the most pervasive social structure resulting from interorganizational ties. A group is a self-contained cluster of organizations with few, if any, ties to other groups (Guillén 1997; Amsden and Hikino 1994; Granovetter 1995; Gerlach 1992). Only one previous empirical study, on the

Japanese keiretsu, predicted and found mild support for the idea that firms in the same business group take into account each other's foreign investments (Chang 1995). Like the voluminous literature on Japanese business groups (e.g. Gerlach 1992; Lincoln et al. 1996), previous research on Korean firms asserts that the most important and pervasive social structure allowing for the interorganizational transfer of knowledge is the business group or chaebol.<sup>1</sup> Companies that belong to the same chaebol engage in a variety of practices conducive to interorganizational learning such as joint recruiting, personnel transfers, financial coordination, and technological resource-sharing. But this is not to say that the chaebol are completely integrated enterprises. There is little evidence indicating that they have put in place the necessary formal mechanisms to fully coordinate decision-making (Kang 1996a:102-103, 1996b:154). The informal Presidents' Council meetings tend to be opportunities to share information, experiences, and future plans rather than to reach collective decisions (Janelli 1993:129-130; Kim 1994), a situation we corroborated in field interviews at both large and small business groups. We therefore argue that membership in a business group potentially exposes a firm to the experiences of other firms, making it easier to explore new possibilities representing drastic departures from current routines. Thus,

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<sup>1</sup> The Korean term chaebol is the transliteration of the Japanese zaibatsu. Both are written with the same two Chinese characters and mean "wealth clique." By contrast to their Japanese counterparts, the chaebol do not include a bank and rely on subcontracting to a lesser extent (Kang 1996a:11, 86-90; Kim 1997; Ungson et al. 1997).

Hypothesis 3: A firm's rate of establishment of plants in a foreign country increases as other firms belonging to the same interorganizational group set up their own plants in the foreign country.

Social structure, however, not only becomes institutionalized in the forms of interorganizational networks and groups but also as spheres or fields of activity within which actors mutually recognize each other's presence and actions (DiMaggio and Powell 1983; Tolbert and Zucker 1983; Abrahamson and Rosenkopf 1993). Firms that see each other as belonging to the same institutionalized arena of organized social action will tend to behave in isomorphic ways, especially when uncertainty is high or cause-effect relationships are blurred. Cultural expectations on the part of competitors, suppliers, providers of capital or the state will encourage organizations to follow the emerging legitimate practice in their field. The industry has been frequently proposed as an important institutional arena of interorganizational isomorphism (Fligstein 1985, 1990; Haveman 1993; Scott 1995:56). Firms benchmark their internal processes and performance against competitors. The state and the financial community need to assess the performance of various firms, and they tend to compare them within industries. The sequential theory of international expansion has been largely oblivious to the possibility of firms conforming to the expectations within their organizational field or acting upon information only available to field insiders. The decision to go abroad is almost invariably surrounded by such an unusual degree of uncertainty that organizations will tend to look within their relevant environment of likes in search for clues and institutional blueprints. As entry into a foreign country gains legitimacy over time, one should expect firms in the same field to join the trend. Accordingly,

Hypothesis 4: A firm's rate of establishment of plants in a foreign country increases with the percentage of firms in the same home-country industry which have already established a plant in the foreign country.

### **Interaction Effects**

A learning-based view of foreign expansion highlights the importance of the firm's first entry into a foreign market. The firm's experiences in a foreign country and those of other firms in the same interorganizational group may be seen as either complementary or substitutive. If the firm learns from the experience of other group firms only until it itself enters the foreign country, then firm learning effects would override group learning effects. If, on the contrary, firm learning reinforces group learning or vice versa, then the effects are complementary. While the literature on sequential foreign investment has not taken a position as to whether firm and group effects interact with each other or not (Chang 1995), an organizational learning perspective suggests that one's experience and the experience of other firms in the group are mutually complementary only to the extent that membership in a business group makes it possible for firms to share information, experiences, and plans. Thus,

Hypothesis 5: The experiences of a firm in a foreign country and those of other firms in the same group complement each other.

While learning from the experience of other organizations beyond the business group may be a powerful force shaping firm behavior, it is unlikely that it can overpower the effect of the organization's own direct experience in a foreign country. At best, others' experiences would shape the firm's interpretation of its own experiences (Levitt

and March 1988). The effects of organizational fields in the home country, therefore, are expected to be less strong after the firm creates its first foreign plant and acquires direct experience in the country. Similarly, firms should be able to overcome the liabilities of newness or of age once they establish their first plant. The theory of sequential foreign expansion corroborates these expectations when it assumes that the first time a firm enters a foreign country is the most difficult one, i.e. firms must surmount the liability of “foreignness” (Hymer 1976; Johanson and Vahlne 1977; Vernon 1979; Zaheer 1995). Once a beachhead or platform has been established in the foreign country, it becomes much easier for the firm to add new facilities. This argument leads to:

Hypothesis 6: The effects of age and organizational fields on the rate of establishment (hypotheses 1 and 4) are reduced after the firm sets up its first plant in the foreign country.

## **RESEARCH DESIGN**

### **Setting**

The international expansion of South Korean companies provides an excellent setting for studying the impact of organizational environments on the learning that occurs when firms go abroad. Prior to the late 1980s, the international manufacturing experience of Korean firms was negligible, making it possible to avoid left censoring problems altogether. In addition, many of the leading Korean manufacturing firms have been created fairly recently. During the 1987-1995 period, the age of the Korean firms in the sample ranged between one and 99 years, making it possible to test for the effects of both the liability of newness and the liability of age. Lastly, Korea is a superb setting to

understand the effect of institutions. In particular, the business group and the organizational field are key aspects of the social structure underlying economic life in that country (Hamilton and Biggart 1988; Biggart 1990).

Rather than the expansion of Korean firms worldwide, this paper controls for host country by looking at entries into China. The People's Republic has become the most important foreign manufacturing location for Korean companies, and one of the largest recipients of foreign investment in general. Although China's "open door policy" towards foreign investors dates back to 1979 (Lardy 1996; Pearson 1991; Zhang and Van den Bulcke 1996), listed Korean firms started to set up facilities in China in 1987 (Lee 1996; Sanford 1990:8-15). Although the potential of the Chinese market was apparent since the early 1980s, Korean firms fully realized the strategic importance of China as a manufacturing site after long-repressed wages in Korea more than doubled between 1987 and 1990. As Wells (1983:76-78) noted, many companies based in developing countries establish plants in other less developed economies in response to wage hikes at home.

Nowadays, Korea ranks as the sixth largest foreign investor in China. Rather than a carefully planned response to China's new policies, the arrival of Korean manufacturing firms was triggered by factors Korean managers could neither control nor anticipate—the sudden political-economic opening of China and rising wage costs at home. Although China and Korea are neighboring countries, and there is a sizable Korean-Chinese population in Northern China (Chai 1993), surveys of South Korean managers have shown them to be overwhelmed by the complexities of dealing with the Chinese government at various levels as well as with a foreign labor force and a new set of suppliers (An Chong Sok 1993; Lee 1996:158). In spite of the autonomy granted to

provincial and local governments to attract foreign investors, the Chinese central government still sets the main parameters within which all foreign companies operate, especially in the areas of supply linkages to centrally-planned enterprises, access to the domestic market, export requirements, import licenses, and foreign exchange management. Fragmentation of governmental authority by province and municipality makes the environment very complex. Subsidiaries belonging to the same group or firm have attempted to coordinate their cash and input flows in order to meet regulations (Lardy 1996; Pearson 1991). Under these circumstances, cumulative experience plays an important role in becoming more managerially effective.

Studying Korean investments in China also has the advantage that this country attracts firms of all sizes and industries. By contrast, Korean firms operating in the European Union, the United States or Mexico tend to be of much greater size and concentrated in high-tech industries. Although China has been gradually expanding the authorized locations for foreign investment to virtually the entire country, most Korean firms operating in China are located in or around Beijing, Tianjin, Qingdao, Liaoning, and Heilongjiang, i.e. along the Northern coastal area and in Manchuria (An Chong Sok 1993; Chai 1993; Lardy 1996).

## **Data**

The empirical study covers 506 South Korean manufacturing firms, and trading companies with manufacturing activities, listed on the Seoul stock exchange as of the end of 1995. Thus, U.S. Standard Industrial Classification (SIC) codes 20 through 39 and 50 are represented in the sample. Only a cross-industry sample allows to test hypotheses

related to the effects of diversified business groups, network connections, and organizational fields. Data on Korean foreign manufacturing plants were obtained from the Bank of Korea, which is in charge of authorizing, registering, and processing all foreign investments by Korean firms. By the end of 1995, 117 of the 506 listed firms had established a total of 202 manufacturing plants in China (see Figure 1).<sup>2</sup> The firms with the most plants were Ssangyong Cement Industries and LG International with eight each, followed by LG Electronics and Daewoo Corporation with seven each, and Daewoo Electronics with six. Most Korean plants in China were set up primarily for export, given that the Chinese government generally requires foreign-invested firms to sell at least 80 percent of their output in foreign markets. Among the products manufactured are textiles, clothing, footwear, foodstuffs, chemicals, cosmetics, cement, flat glass, metal containers, mechanical components, electrical appliances, vehicle parts, excavators, and even pianos. The month and year in which the Bank of Korea authorized the investment was considered to be the time at which the establishment of the plant was made. In some cases, firms applied for and obtained authorization but did not actually establish a plant. Such occurrences were deleted from the data set. The Bank of Korea correctly treated additions to, or expansions of, a preexisting plant as “enlargements” rather than new entries.

The rate of establishment of new plants was modeled as a repeated hazard. Each spell or duration between events constitutes an observation in the data set for analysis. In the case of firms with plants in China, the first observation starts at the beginning of

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<sup>2</sup> Only three Korean firms had established in China subsidiaries for trading purposes exclusively by the end of 1995. These investments were ignored in the empirical analysis.

January 1987 or at the firm's founding date, whichever came last. Given that no plants were established in China by listed Korean firms prior to 1987, there is no left-censoring problem. The last observation for each investing firm was right-censored so as to reflect the spell between the last establishment and the end of the study, i.e. just after the end of December 1995. For example, Firm A in Figure 2 invested four times in China between 1987 and 1995, thus contributing five spells to the data set. Firms with no plants in China as of the end of 1995 contribute one right-censored observation to the data set, with a starting date of January 1987 or the firm's founding date—whichever came last—and an ending date just after the end of December 1995, as in the case of Firm B in Figure 2.

Background firm variables and information on interorganizational relationships were obtained from field interviews as well as various annual and semiannual company directories (Asia-Pacific Infoserv, Inc. 1994-1996, 1991-1996; Business Korea 1986; KPC 1985a, 1985b). A total of 180 firms in the sample were identified as being affiliated to one of 55 business groups, with a minimum of 2 listed firms and a maximum of 9 firms (Hyundai group). Fourteen of the groups had a trading company in the sample of listed firms. Some of the 31 listed trading companies are not only dedicated to import-export activities, but also to manufacturing. For example, by the end of 1995, LG International, the trading company of the LG group, had eight manufacturing plants in China in machinery, metals, and other assembly industries. Daewoo Electronics was in 1987 the first listed South Korean firm to set foot in China with a joint venture to make TV sets and refrigerators. This plant was mired by problems related to its location in a very poor area and disagreements with local partners, which triggered its closure in 1993 (Chai 1993). Daewoo, though, learned from the experience. The second entry by a listed

Daewoo company did not take place until 1991, when the group's trading arm established a plant to manufacture bags and tents. Between that year and the end of 1995, Daewoo Electronics opened five additional plants; Daewoo Electronic Components, three; Daewoo Heavy Industries, one; and the Daewoo Corporation trading company, five (see Table 1).<sup>3</sup>

### **Learning Variables**

Independent variables were allowed to vary over time if the necessary information was available from the data sources. The counter of previous establishments by the same firm was updated after each event.<sup>4</sup> The dummy indicating whether a firm in the same

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<sup>3</sup> Interviews, Daewoo Group, Seoul, June 3-4, 1997. See also: Kang (1996b:154); Chung (1988); Sanford (1990:10); Financial Times, October 28, 1985, p. 16, and April 6, 1986, Survey p. xii; The Economist, November 2, 1985, p. 82, and March 22, 1986, p. 78.

Influences across organizations in the same group, however, could also be caused by an attempt to replicate in the foreign country the value chain of vertically-linked group companies present in the home country. In the case of Korean firms in China, though, this pattern has been relatively rare. Interview, International Business Division of the Ministry of Trade, Industry & Energy, Seoul, May 30, 1997.

<sup>4</sup> Similar results were obtained using either a counter of the number of entries by the same firm or a dummy variable coded as zero before the first entry and as one thereafter. The two variables are very highly correlated with each other, a situation similar to that found in other studies (Chang 1995; Kogut and Chang 1996). The model building strategy required to include the dummy variable as a main effect so as to test for the

business group had established a plant was coded as zero until the first event occurred and as one thereafter for all of the firms affiliated with the group. In the case of firms which were the first in their business group to establish a plant in China, the group dummy variable was not coded as one until a second firm in the same group set up a plant. This coding technique avoids double counting of establishments by the firm and by other firms in the same group. Figure 3 presents two hypothetical examples to clarify the coding procedure. Firm  $A_1$  was the first firm in Group A to invest, and it did so a total of three times. Therefore, the previous group entry dummy for this firm is equal to zero until the moment a second firm in the group entered (Firm  $A_2$  at time of entry  $E_3$ ). A total of five spells are generated for Firm  $A_1$  so as to accommodate the time-varying dummy for previous group entry. For both Firm  $A_2$  and Firm  $A_3$ , however, the dummy is coded as zero only until Firm  $A_1$  entered for the first time. Since firm  $A_2$  invested twice, it generates four spells. Firm  $A_3$  never invested, generating only two spells. Lastly, since neither of the three firms belonging to Group B have entered, each contributes one spell.

Institutional emulation in the organizational field was measured by the proportion of firms in each of 19 industries that had previously established a plant in China. This variable was updated at the end of each calendar year between 1987 and 1995, and it ranged between zero and 57.14 percent. The firm's age was also updated at the end of each year, ranging between one and 99 years. No provision was made in this study to take into account the fact that organizations may forget what they have learned from their own experience or from the experience of others. Studies observing organizations over

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interactions predicted by hypotheses 5 and 6. Therefore, the dummy was used and not the counter.

very long periods (e.g. 50 years or more) have allowed for the stock of accumulated experience to decay over time (Baum and Ingram 1995). Given that this study is based on nine years worth of observation, assuming zero knowledge depreciation over time does not pose severe problems.

### **Control Variables**

A number of economic controls were added following previous research on foreign investment (Caves 1996; Dunning 1993). First, firm-level variables generally associated with higher rates of foreign manufacturing expansion such as size, technological assets, and export orientation were included. Firm size was measured by the log of sales. Due to data availability limitations, this variable was treated as time-varying for 1993, 1994 and 1995. The 1993 figures were used for all earlier years. Technological sophistication was measured by the ratio of cumulative R&D expenses to sales. This variable was available for 1995, as was export orientation, measured by the ratio of export sales to total sales.<sup>5</sup>

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<sup>5</sup> In Korea, the so-called “R&D efficiency expenses” are generally reported by firms, which include the year-on-year rate of change, R&D depreciation, development expenses, and ordinary R&D expenses. This measure approximates the value of the cumulative stock of R&D expenses. Thus, it captures the firm’s R&D effort over the years, as opposed to during a single year. Given that this definition departs from the usual one in the United States or Europe, regression analyses were also conducted without this variable. Similar results were obtained.

Second, linear and quadratic terms for the 1989 three-firm concentration ratio within 19 Korean manufacturing industries at the two-digit SIC level were included in all equations. The ratios were calculated using unpublished data at the five-digit level of the Korean product classification supplied by the Korea Development Institute. Third, it was deemed necessary to hold constant for the declining competitiveness of the Korean home base as a manufacturing location over the period under study. The literature and field interviews suggested that rising wages in Korea relative to other countries in East and South Asia, and the real appreciation of the country's currency, the won, have prompted firms to look for foreign manufacturing locations. Two control variables were used: the growth in Korean real wages compared with the growth in Chinese real wages, using 1990 as the index base; and the real exchange rate between the won and the U.S. dollar.<sup>6</sup> Both variables were updated annually using government statistics (NSOROK 1987-1996). Lastly, the relative attractiveness of various industries in China was controlled for by including their growth rates between 1987 and 1995 for 19 industries (SSBPRC 1987-1996).

The information pertaining to the 34 manufacturing plants established by 14 of the 31 trading companies was taken into account when calculating learning effects at the group level but excluded from the regressions because the firm-level background information could not be broken down between manufacturing and trading activities. Regression results including the 31 trading companies did not differ substantially from those reported below. Missing data on some of the independent variables for 11 firms and

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<sup>6</sup> Interview, International Business Division of the Ministry of Trade, Industry & Energy, Seoul, May 30, 1997.

the exclusion of all 31 trading companies reduced the final sample for analysis to 464 firms of which 86 had established a total of 170 manufacturing plants in China by the end of 1995. These data generated 4,442 spells after durations were split when an event occurred, and at the end of each calendar year so as to accommodate the time-varying explanatory variables. Table 2 shows the sample descriptive statistics and the correlations between pairs of explanatory variables, which are generally very low.

### Method

The effect of explanatory and control variables (or covariates) on the rate of establishment of foreign plants was estimated using a partial likelihood hazard specification or Cox model allowing for right-censored observations and implemented with the TDA computer program (Kalbfleisch and Prentice 1980; Röhwer 1994). Hazard rates of establishment are represented by log-linear functions of the covariates of interest. For each firm, the model calculates the hazard as the likelihood that the observed establishments will take place conditional upon the hazards of all the other firms in the risk set:

$$L_i(t) = h_0(t) \exp \{ A^{(i)} \alpha + B^{(i)}(t) \beta(t) \} / h_0(t) \sum_{j \in R_t} \exp \{ A^{(j)} \alpha + B^{(j)}(t) \beta(t) \},$$

where  $L_i(t)$  is the likelihood at time  $t$  for firm  $i$ ;  $h_0(t)$  is the baseline rate;  $A^{(i)}$  is a row vector of time-invariant covariates;  $B^{(i)}(t)$  is a matrix of time-varying covariates;  $\alpha$  and  $\beta(t)$  are the associated vectors of coefficients to be estimated; and  $j$  is an index for firms in the risk set  $R_t$  at time  $t$ .

This statistical method makes three conventional assumptions. First, the covariates exert a log-linear effect on the hazard function. Second, the baseline hazard rates and the log-linear function of the covariates are supposed to be proportional. Third, the baseline hazard rate is considered to be the same for all firms in the risk set. The latter two assumptions allow to leave the baseline hazard unspecified. Thus, taking into account only the conditional probabilities of establishing a plant, we obtain:

$$L_i(t) = \exp \{ A^{(i)} \alpha + B^{(i)}(t) \beta(t) \} / \sum_{j \in R_t} \exp \{ A^{(j)} \alpha + B^{(j)}(t) \beta(t) \}.$$

In order to estimate the coefficients in the model, one maximizes the “partial” likelihood function obtained by multiplying all of the conditional probabilities for each time spell ending in a plant establishment. Right-censored spells enter the risk set at each time period but do not contribute to the numerator of the likelihood function. This procedure yields consistent and asymptotically normally distributed parameter estimates, with the  $t$ -statistics being asymptotically close to the full maximum likelihood estimates (Cox and Oakes 1984; Tuma and Hannan 1984).

## RESULTS

Table 3 reports the parameter estimates and  $t$ -statistics for five model specifications designed to test the hypotheses. Model A is the baseline solely including economic control variables at the firm, industry, and country levels of analysis. It confirms the conventional wisdom that the rate of foreign expansion increases with: the firm’s size and export intensity; moderate levels of industry concentration in the home country, peaking at a level of 44.7 percent and decreasing thereafter; the declining competitiveness of the firm’s home-country base as a result of rising real wages or a

home currency which appreciates in real terms, i.e. a lower real exchange rate; and the growth in the corresponding Chinese industry. R&D effort bears the correct sign but does not reach significance.

Model B adds the linear and squared terms for firm age to the baseline. Age increases the likelihood of foreign expansion until a level of 40.8 years, declining thereafter. This finding is consistent with hypothesis 1 predicting that organizations which are either too young or too old find it difficult to engage in exploratory learning leading to the establishment of a foreign plant. Including a set of industry dummies in the equation yielded similar results, with only the dummies for Chemicals and Primary Metals reaching significance. Therefore, the inverted U-shaped effect of age is not an epiphenomenon of differences in the development of industries over time. Model C incorporates the dummy variable indicating whether the firm had previously set up a plant in China. Firms with at least one plant are significantly more likely to set up additional plants, confirming hypothesis 2 about the platform value of an initial manufacturing investment.

Model D adds the two supra-organizational level learning variables. Previous entries by another firm in the same business group accelerate the rate of expansion for all firms in the group as predicted by hypothesis 3. Being part of a business group per se tends to reduce the rate, though not significantly. This finding is consistent with the observation in the literature that Korean firms of all types have been attracted to China as a location for manufacturing (Lee 1996).<sup>7</sup> Finally, industry isomorphism appears to be

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<sup>7</sup> In a regression not reported in Table 3, the rate of foreign expansion for a given firm was not significantly affected by the previous entries of other firms connected to it

marginally significant in Model D. Thus, no strong support could be found for hypothesis 4.

The last column in Table 3, Model E, includes interaction effects between previous firm entry, on the one hand, and each of the rest of the learning variables, on the other. Consistent with hypothesis 5, firm and business group learning complement each other in increasing the rate of foreign expansion, as indicated by the positive and significant estimate for the interaction term. Firms in the same chaebol seem to engage in coordinating practices and sharing of experiences related to foreign investment that persist beyond each firm's first entry into a foreign country.

Hypothesis 6 predicting that industry isomorphism and firm age increase the rate of expansion before the firm itself establishes its first plant but not thereafter receives mixed support. The effect of industry imitation is very significant before the first entry, and is reduced thereafter, as indicated by the positive and significant main effect, and the negative and significant interaction term with previous firm entry. This finding supports the point of view that institutional effects originating from the home country have an impact on what the firm does in a foreign country only the first time around, but not when considering further entries. The effect of organizational age, by contrast, is not diminished after the firm establishes its first foreign plant, suggesting that neither extreme newness nor old-age inertia are overcome after the firm acquires direct experience in the foreign country. This result should be interpreted with some caution because the relatively short time period of this study (nine years) means that the effect of indirectly through one intermediary in the network of cross-shareholdings. The results for other variables remained virtually unchanged.

organizational age on the rate of expansion is mostly a cross-sectional rather than a longitudinal one. Therefore, the regression results capture the effect of age differences across the firms in the sample at the end of each year between 1987 and 1995 rather than the dynamic effects of age as the firm grows older over time. It is also important to note that the inverted U-shaped effect of age on the rate of foreign expansion found in Model B disappears as firm and supra-organizational level learning variables are added. One way of interpreting this finding is that organizations can only manage to escape “competency traps” after the first departure from exploiting current routines has occurred and/or when learning takes place at a level higher than the organization itself (Baum and Ingram 1995).

Model E provides general support in favor of the learning view of foreign expansion proposed in this paper. The findings strongly suggest that hypothesis 4 needs to be revised in light of the backing found for hypothesis 6: industry isomorphism in the home country increase the rate of expansion only during the time prior to the firm’s first entry into the foreign country. Comparing the full model E to the baseline model A yields a significant improvement in goodness-of-fit, as indicated by a change of 36.94 in the log-likelihood with eleven fewer degrees of freedom ( $p < 0.001$ ). Thus, the evidence in this sample indicates that the baseline economic model provides only a partial account of the sequential process of foreign expansion of firms. One needs to take into account the institutional and ecological context of organizational learning in order to get the full picture.

The results reported in Table 3 are robust to changes in control variables and model specifications. Including industry dummies did not change the results, and the

dummies were never jointly significant as a set. Dummy variables accounting for every three years of observation did not alter the results either. Regressions restricting the sample to just the firms affiliated to the business groups (1583 spells and 85 events) or to the unaffiliated firms (2859 spells and 85 events) yielded results similar to those reported, with only one noteworthy difference between each set of firms: the industry imitation effects found in Model E reached significance for unaffiliated firms though not for members of business groups. This finding suggests that firms belonging to a business group have less of a need to imitate their peers in the same organizational field, a finding that corroborates the descriptions in the literature about how the chaebol provide their member firms with opportunities to share experiences, information and resources that are not available to non-member firms (Kim 1997; Ungson et al. 1997; Kang 1996a).

## **DISCUSSION AND CONCLUSION**

The internationalization of firms has rarely received the attention of organizational researchers. This paper has proposed an organizational learning approach to foreign expansion drawing from neoinstitutional and ecological theories, and found robust empirical support with information on all investments in China by listed Korean firms. An organizational learning view of foreign expansion argues that a firm learns not only from its own experiences but also from the experiences of others in the relevant organizational environment. While economics and international management have considered the macroeconomic environment and other economic characteristics at the industry level, organizational theory emphasizes that organizations operate in environments structured by other relevant organizations. In particular, firms are

responsive to the signals received from other firms in the same group and organizational field. Learning over time is also affected by the organization's age, a variable that modulates the impact of the environment. Thus, neoinstitutional and ecological theories have key insights to offer to the study of the process by which firms become multinationals.

The empirical results reported in this paper also offer an opportunity to enrich neoinstitutional theories of organization. The effects of home-country industry isomorphism on the rate of foreign expansion was found to disappear after the firm's first entry. This result suggests that a dynamic rather than a static assessment of the effects of organizational fields on foreign investment decisions is in order. The organizational environment that is most relevant to understand foreign expansion seems to be different depending on whether one is analyzing the first or subsequent entries into the foreign country. When considering the reasons behind a firm's first entry, institutional variables in the home country exert a discernible impact on foreign investment decisions. Prior to the firm's first entry, information about the foreign country is mainly obtained from, and interpreted through, the firm's interaction with other organizations in its home country. Once a direct presence in the foreign country has been established—including both the experience of setting up a plant and of accumulated manufacturing—the institutional context of learning seems to shift, at least in part, to the foreign country. Suddenly, the firm is directly exposed not only to the home-country environment but to a foreign one as well. This allows managers to gather information on site, opening up a range of new opportunities. A firm with a foreign plant is in a position to gather and use local knowledge, and is exposed to local influences when considering further investments.

The implications of the finding that first and subsequent plant establishments are qualitatively different may spill over into other research questions as well. Most previous research on organizational events has not been concerned with the difference between first versus subsequent occurrences because the dependent variable under consideration was not of a repeated nature. Examples include the adoption of such artifacts as the multidivisional form (Fligstein 1985), the “poison pill” to avoid hostile takeovers (Davis 1991), Total Quality Management programs (Westphal et al. 1997), or the matrix structure (Burns and Wholey 1993). When organizational researchers have studied repeated events, e.g. strategic alliances between firms (Gulati 1995a, 1995b), the difference between first and subsequent events has proved to be empirically important, although the problem of overlapping or competing environments was not explicitly considered. Foreign expansion is (or may be) a repeated event, and it always implies that the organization becomes subject to more than one institutional environment (Westney 1993). The lesson to be drawn is that, as organizations learn, the effect of institutions may be fundamentally transformed by the very accumulation of events or by the occurrence of an event marking a discontinuity in the firm’s history, such as gaining direct experience in a foreign country by establishing its first manufacturing plant. Empirical organizational research on the adoption of innovations or new practices could perhaps model the dependent variable as a repeated measure to further confirm and refine this important finding.

As opposed to organizational field influences, business group effects were found to persist after the firm first entered the foreign country. Firm and business group learning processes seem to reinforce each other. This finding is consistent with the

ethnographic and organizational-level literature about business groups characterized by high degrees of information sharing, of which the South Korean chaebol is a prime example. In field interviews, Korean managers at both the firm and the chaebol level invariably emphasized the coordination efforts that take place when any one firm in the group considers establishing a plant abroad. To the extent that the chaebol have developed formal or informal organizational mechanisms to gather information and diffuse it across the group, one should expect member companies to be able to learn from the foreign experiences of other firms in the same group. Moreover, top managers of firms and foreign subsidiaries tend to rotate from one organization to another within the same chaebol, frequently crossing industry and country boundaries. Thus, knowledge moves from one location to another as managerial personnel is redeployed. Companies belonging to the same chaebol operate in a variety of industries, establish separate supplier and customer relationships along their value chain, and tap into different technologies and labor markets, frequently segregated by gender and segmented by region. However, when it comes to a major decision such as establishing a plant in a foreign country, group-level influences make an impact that complements firm-level effects.

The empirical research on foreign expansion reported in this paper may be extended in four directions. First, no allowance was made in this study for firms forgetting what they learn. This assumption was not especially compromising given that the period of observation was nine years. Studies over a longer period of time ought to test for the effects of knowledge depreciation or decay. Second, firms enter countries in different ways ranging from wholly-owned to minority joint venture or from greenfield to

acquisition, a decision that may be affected not only by the economic factors identified in the existing literature but also by learning and organizational variables along the lines explored in this paper. Third, for a variety of mostly political reasons China tends to attract few trading investments that are not accompanied by manufacturing activities. Therefore, it would be instructive to apply the organizational learning framework developed in this paper to the situation of a host country or area in which foreign firms establish a more balanced mix of trading and manufacturing activities such as in the United States or Europe. Lastly, additional research on the effects of business groups, networks, and organizational fields in different home countries would help better understand the role that institutions play in the process of foreign expansion. Such research extensions would help establish a solid tradition of organizational inquiry into the foreign activities of firms, an area that has received token attention thus far.

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**Table 1: Listed Companies of the Daewoo Group and their Manufacturing Plants in China, 1987-1995**

<i>Company:</i>	<i>Year Founded</i>	<i>Part of Daewoo</i>	<i>Manufacturing Plants in China:</i>		
			<i>Year</i>	<i>Products</i>	<i>Location</i>
Orion Electric	1965	1965	-	-	-
Daewoo Electronics	1974	1974	1987	TV sets, refrigerators	Fuzhou
			1993	Car stereos	Tianjin
			1994	Fan heaters	Harbin
			1995	CRT monitors	Weihai
			1995	Appliance motors <sup>b</sup>	Tianjin
Daewoo Electronic Components	1973	1973	1994	Deflection yokes	Xianyang
			1994	Deflection yokes	Yantai
			1995	Saw filters, E-tuners	Yantai
Daewoo Heavy Industries	1937	1976	1994	Excavators, trailers	Shandong
Daewoo Corporation <sup>a</sup>	1967	1967	1991	Bags, tents	Dalian
			1992	Granite	Qingdao
			1993	Cement	Shandong
			1994	Tin plate	Haikou
			1994	Apparel	Tianjin
			1995	Printing & dyeing	Suzhou

Notes: <sup>a</sup> Trading arm of the Daewoo Group since 1975.

<sup>b</sup> In collaboration with Daewoo Electric Motor Industries.

Sources: Daewoo (1994:63; 1996:32, 48, 78-79); News from Daewoo (March 1997, p. 13; 1995 Highlights, pp. 15, 17); field interviews.

**Table 2: Sample Descriptive Statistics and Correlations (n=4442 spells)**

<i>Variable:</i>	mean	sd	1	2	3	4	5	6	7	8	9	10	11
1. Log sales (million won)	11.510	1.296											
2. R&D over sales (%)	0.888	1.400	.210										
3. Exports over sales (%)	28.793	28.345	.042	.096									
4. Firm age (years)	26.415	12.363	.260	-.085	-.159								
5. Previous firm entry	0.084	0.277	.155	.130	.182	.046							
6. Member of a business group	0.356	0.479	.503	.177	.050	.040	.049						
7. Previous group entry	0.071	0.256	.342	.212	.101	.046	.198	.371					
8. % Same industry entry	4.822	8.736	.039	.141	.240	.056	.422	-.026	.168				
9. Relative wage ratio (1990=100)	92.269	10.196	.019	.001	.007	.134	.128	.007	.115	.234			
10. Korea industry concentration	54.194	13.573	.104	.071	-.189	.080	-.027	.082	.026	-.050	-.004		
11. China industry growth 1995/1987	389.797	89.657	.062	.157	.156	-.106	.105	.016	.048	.254	.003	.015	
12. Real exchange rate (won per \$)	724.718	48.033	-.047	.000	-.005	-.128	-.176	-.009	-.132	-.335	-.702	.004	-.002

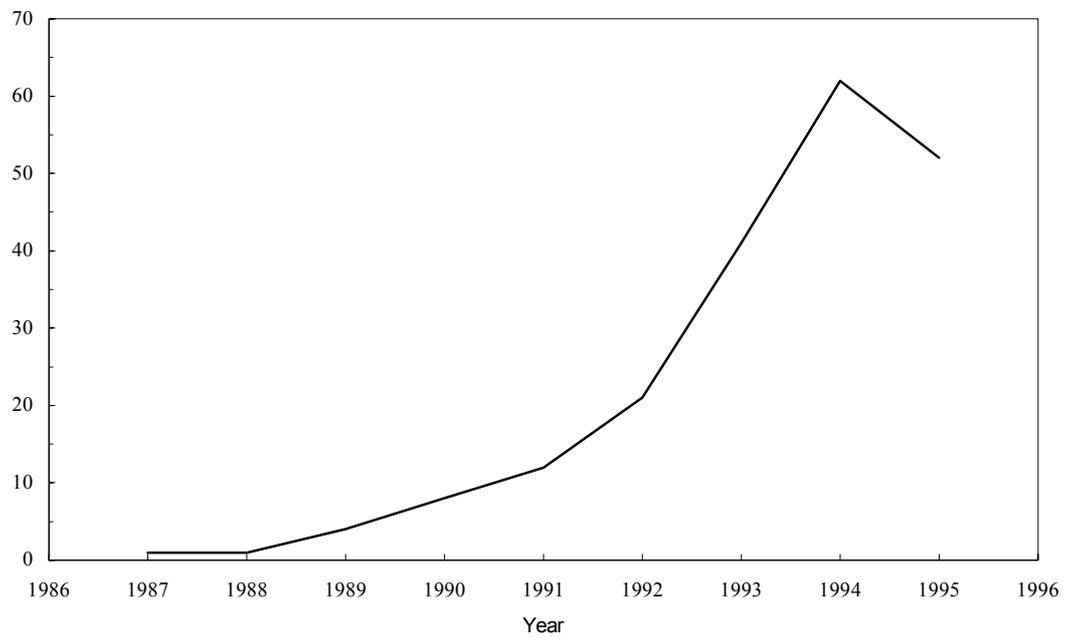
**Table 3: Proportional Hazard of Entry of South Korean Manufacturing Firms in China, 1987-1995**

	Model A	Model B	Model C	Model D	Model E
<i>Firm Characteristics:</i>					
Log sales	0.4142*** (7.642)	0.3628*** (6.212)	0.3359*** (5.784)	0.3206*** (4.548)	0.3106*** (4.329)
R&D over sales	0.0666 (1.406)	0.0891* (1.839)	0.0428 (0.856)	0.0105 (0.202)	-0.0004 (0.007)
Exports over sales	0.0151*** (5.937)	0.0164*** (6.184)	0.0136*** (4.848)	0.0118*** (4.020)	0.0121*** (4.132)
<i>Learning Variables:</i>					
Firm age		0.0652** (2.242)	0.0494* (1.737)	0.0424 (1.478)	0.0435 (1.494)
Firm age squared		-0.0008* (1.940)	-0.0006* (1.500)	-0.0005 (1.315)	-0.0005 (1.281)
Firm age × Previous firm entry					-0.0124 (0.737)
Previous firm entry			1.2201*** (6.596)	1.0352*** (5.159)	1.9701*** (3.440)
Member of a business group				-0.3076 (1.374)	-0.3166 (1.404)
Previous group entry				0.6954*** (2.759)	0.3129 (0.986)
Previous group entry × Previous firm entry					0.8022** (2.070)
% Same industry entry				0.0155* (1.713)	0.0350*** (3.480)
% Same industry entry × Previous firm entry					-0.0520*** (3.472)
<i>Industry &amp; Macroeconomic Controls:</i>					
Relative wage ratio	0.0483*** (2.996)	0.0458*** (2.814)	0.0468*** (2.758)	0.0478*** (2.685)	0.0465** (2.535)
Korea industry concentration	0.2054*** (4.027)	0.2079*** (3.984)	0.1910*** (3.664)	0.1753*** (3.340)	0.1693*** (3.219)
Korea industry concentration squared	-0.0023*** (4.315)	-0.0023*** (4.271)	-0.0021*** (3.931)	-0.0019*** (3.577)	-0.0019*** (3.461)
China industry growth	0.0036*** (4.000)	0.0039*** (4.256)	0.0032*** (3.389)	0.0026*** (2.600)	0.0025** (2.494)
Real exchange rate	-0.0167*** (5.326)	-0.0159*** (5.094)	-0.0099*** (3.183)	-0.0060* (1.729)	-0.0059* (1.687)
Log-likelihood	-1294.04	-1290.99	-1271.02	-1264.98	-1257.10
Number of spells	4442	4442	4442	4442	4442
Number of firms	464	464	464	464	464
Number of events	170	170	170	170	170

*t*-statistics shown in parentheses beneath parameter estimates.

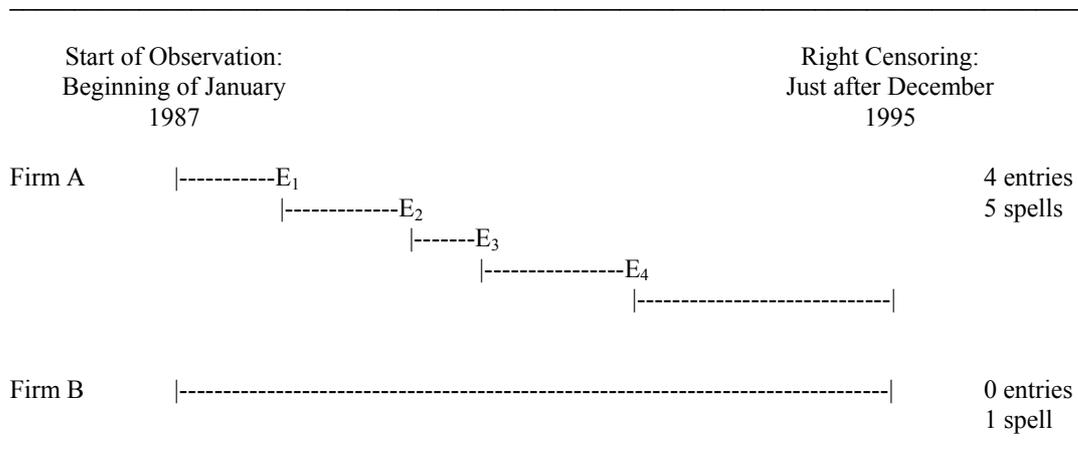
\*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.10$

**Figure 1: Manufacturing Entries in China by Listed South Korean Firms, 1987-1995 (n=202)**



Source: Bank of Korea.

**Figure 2: Generation of Spells for a Repeated Hazard Model of Entry (E) with Right Censoring**



**Figure 3: Coding of the Previous Group Entry Dummy for a Repeated Hazard Model of Entry (E)**

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	Start of Observation: Beginning of January 1987	Right Censoring: Just after December 1995
<i>Group A:</i>		
Firm A <sub>1</sub>	-----E <sub>1</sub> -----E <sub>2</sub> -----E <sub>5</sub> -----   ← dummy = 0 → ← dummy = 1 →	3 entries 5 spells
Firm A <sub>2</sub>	-----E <sub>3</sub> -----E <sub>4</sub> -----   ← dummy = 0 → ← dummy = 1 →	2 entries 4 spells
Firm A <sub>3</sub>	-----   ← dummy = 0 → ← dummy = 1 →	0 entries 2 spells
<i>Group B:</i>		
Firm B <sub>1</sub>	-----   ← dummy = 0 →	0 entries 1 spell
Firm B <sub>2</sub>	-----   ← dummy = 0 →	0 entries 1 spell
Firm B <sub>3</sub>	-----   ← dummy = 0 →	0 entries 1 spell

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