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Author(s)	Chang, Sea-Jin; Rhee, Jay Hyuk
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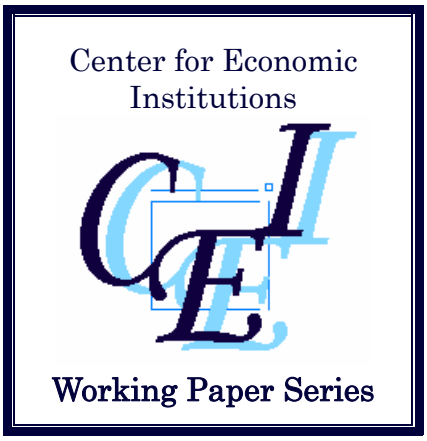
November 2007



Institute of Economic Research
Hitotsubashi University
2-1 Naka, Kunitachi, Tokyo, 186-8603 JAPAN
Tel: +81-42-580-8405
Fax: +81-42-580-8333
e-mail: cei-info@ier.hit-u.ac.jp

Rapid International Expansion Strategy of Emerging Market Enterprises: The Interplay between Speed and Competitive Risks on International performance

Sea-Jin Chang
School of Business Administration
Korea University
Seoul 136-701, KOREA
Tel: 82-2-3290-1939
Fax: 82-2-922-7220
Email: schang@korea.ac.kr

and

Jay Hyuk Rhee
School of Business Administration
Korea University
Seoul 136-701, KOREA
Tel: 82-2-3290-1959
Fax: 82-2-922-7220
Email: jayrhee@korea.ac.kr

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Rapid International Expansion Strategy of Emerging Market Enterprises: The Interplay between Speed and Competitive Risks on International performance

Abstract:

Firms that internationalize relatively late may pursue rapid internationalization by entering multiple markets simultaneously to reach global scale faster and to capture early mover advantages. These trends run counter to the theory of incremental internationalization. With data on Korean firms' early international expansion experiences, we found evidence that a rapid international expansion strategy enhances firm performance in industries where globalization pressures are high, by firms with less lead-time of their home-country rivals, and in countries where they could be early movers.

Keywords: incremental internationalization, rapid international expansion strategy, emerging markets, foreign subsidiary survival, foreign direct investment

Running head: Rapid international expansion strategy

Most international business literature has proposed that firms expand internationally through incremental foreign direct investments. Johanson and Wiedersheim-Paul (1975) showed how firms sequentially enter countries according to the psychic distance between these countries and their home countries. Johanson and Vahlne (1977) found that firms enter foreign markets through exports, later establish sales subsidiaries, and eventually invest in wholly-owned manufacturing subsidiaries. Kogut (1983), Chang (1995), and Kogut and Chang (1996) demonstrated that firms sequentially enter a foreign market by adding more plants and by adding more lines of business over time. The logic behind the incremental approach is that it allows firms to gradually learn about foreign markets and incrementally increase commitments. By doing so, firms can maximize the benefits of learning and reduce the hazard of failure. Because the "incremental expansion" theory is intuitively logical and theoretically parsimonious, it has been labeled as axiomatic (Andersen 1993).

Yet several researchers argue this theory may be incorrect. They point out that it does not explain the internationalization of new startups (Oviatt and McDougall, 1997) or the phenomena of "born global" firms (Knight and Cavusgil, 1996; Madsen and Servais, 1997). Anecdotal evidence suggests that European firms such as Thomson, Rhône-Poulenc, and Accor expanded their U.S. positions by taking a few large steps, rather than taking a lengthy and gradual approach (Rosenzweig, 1994). Furthermore, the incremental approach might not be applicable to firms from emerging market countries that had to respond to increasing global competition, as exemplified by the recent acquisitions of IBM's PC business and Thomson's TV business by Lenovo and TCL, respectively. In short, the incremental internationalization theory might not be applicable to firms that have expanded internationally in recent years.

Indeed, this theory is limited by its own underlying assumptions. Because it was based on the experience of Swedish and Japanese multinationals that internationalized early, the theory emphasizes "learning by doing" as the only way to reduce market uncertainty, as

well as the hazard of failure during foreign market entry. It assumes that once firms acquire knowledge of foreign markets by investing incrementally, they succeed in those countries. It does not consider, however, the "competitive risk" associated with the incremental approach. When firms internationalize, they compete not only with local firms but also with other multinationals that have already established themselves in those countries. If a firm that internationalizes late expands incrementally, it might be able to reduce market uncertainty, but still have to face greater competitive risks in those countries.

As trade and investment barriers fall and real-time communication technologies improve, global competition among multinational firms has intensified markedly. Firms that can source, develop, manufacture, and sell their products and services worldwide can have strong competitive advantages over their less internationalized rivals. Although a firm that adopts an incremental approach may reduce its hazard of failure when it enters one market, it may expose itself to a greater risk by its inability to attain global scale quickly. Thus, firms that internationalize late, such as those from emerging economies, may feel compelled to enter multiple markets over a short period in order to build their global operations quickly.

The appropriateness of the rapid internationalization strategy is also contingent upon the competitive pressures a focal firm faces in both its home country and host countries. Some firms that may lag their home-country rivals in globalizing may expand rapidly internationally to catch up. Other firms may choose target countries strategically, given the competitive environments of host countries. For instance, some firms may prefer emerging markets rather than established markets in developed countries. By doing so, they often avoid competing with well-established multinationals in the latter markets and instead enjoy first-mover advantages where they enter. For instance, Korea's Daewoo Motors quickly acquired or established manufacturing plants in India, Poland, Uzbekistan, Vietnam and China during the early 1990s soon after these markets were opened to outsiders (Park, 1998).

To date, little is known about the soundness of rapid international expansion strategies. Most prior work on international expansion has focused on European, Japanese, and US firms. It has not explored thoroughly whether the incremental internationalization theory is equally applicable to firms that pursued internationalization later. Our study addresses this gap by exploring when and where a rapid international expansion strategy might generate superior performance.

To address this gap, we have assembled unique data of a population of Korean firms' foreign direct investments for 1970-1996. During this period, Korea rapidly progressed from being less-developed to being a newly industrialized country (NIC). By the mid-1990s, it was industrialized and developed. Many observers credit Korean firms' international market orientation for the country's miraculous growth (Cha, Kim, and Perkins, 1997). Unlike firms from established economies that internationalized earlier, Korean firms' internationalization experience has vivid parallels to that of firms from other emerging markets, such as China and India, which begin expanding internationally only recently. Since these latter firms have just started to internationalize, it may be too early to gauge their success at this endeavor.

To evaluate the performance of emerging market enterprises' internationalization strategies, the data from our sample go from 1970, when Korean firms made their first foreign direct investments, to 1996, when Korea became the 29th member of the OECD. We also trace Korean firms' international performance up to 2003. We believe the experience Korean firms gained while Korea was an emerging economy can provide useful lessons both to other emerging market enterprises that are now starting to internationalize and to international business scholars, who wish to develop theories that can explain late movers' internationalization strategies.

INCREMENTAL INTERNATIONALIZATION MODEL REVISITED

Foreign direct investment has long been an important topic in international business research. Beginning with Hymer (1960), scholars have been interested in the factors that lead specific firms, rather than countries or industries, to undertake foreign direct investment. Subsequent empirical studies have confirmed the positive correlation between foreign investment and intangible assets (Caves, 1971; Pugel, 1985; Kogut and Chang, 1991).[1]

Foreign direct investment has been understood as an incremental process in which initial investments affect the nature and timing of subsequent investments. Johanson and Wiedersheim-Paul (1975) argue that firms should move sequentially from a country of less psychic distance to a country of greater psychic distance. Johanson and Vahlne (1977) propose a conceptual framework of the internationalization process in which a firm moves from initially exporting to another country to establishing sales and production subsidiaries in that country.[2] The firm then increases its commitments as it accumulates knowledge about the host markets. Yu (1990) showed that international operations experience, as measured by the ratio of foreign sales to total sales, increases the likelihood of entry. Davidson (1980) emphasized the geographic pattern of multinational corporations' evolution by showing that if a firm had invested in a given country, it was more likely to invest further in that country. Kogut and Chang (1996) showed that Japanese firms with prior investments in a foreign market, especially in export-related distribution facilities, were more likely to invest subsequently, given appropriate exchange rates. Kogut (1983) states that foreign direct investment decisions are best viewed as part of a series of sequential decisions that determine the volume and direction of resource flows among countries. He notes that multinational firms often use earnings from foreign operations to invest in another project in the same

[1] A contrasting approach views multinational firms as efficient agents for transferring resources, thus minimizing transaction costs (Buckley and Casson, 1976; Magee, 1977; Rugman, 1981; Hennart, 1982, 1991).

[2] Buckley and Casson (1981) presented an analytical model in which firms switch their modes of serving foreign markets among export, licensing, and foreign direct investment. In the model, the optimal timing of switching depends upon the costs of serving the foreign markets and demand conditions. Similarly, Buckley and

country, or in other foreign subsidiaries.

Multinational firms also display a sequential pattern in which they add lines of business in a given host country. Many multinationals have multiple businesses, yet their foreign subsidiaries often begin in a single line of business and add others over time. In his extension of the sequential foreign investment approach to the line of business level, Chang (1995) hypothesizes that multinational firms first enter foreign markets in lines of business in which they have the greatest competitive advantage over local firms so as to overcome the liability of foreignness. As a firm gains experience in the host country--learning about local practices, building relations with local suppliers, working with governmental agencies, and recruiting local employees--its liability of foreignness diminishes, allowing it to enter lines of business for which its competitive advantage over local firms is lower.

Taken together, the model describes international expansion as a process consisting of a series of small steps, whereby firms gradually increase their international involvement. The logic behind the incremental approach is that it allows firms to gradually learn about foreign markets and incrementally increase commitments to them. By doing so, firms can maximize the benefits of learning and reduce the hazard of failure.

In contrast, some firms may internationalize rapidly by acquiring or establishing their foreign subsidiaries over a short time. By definition, firms that internationalize rapidly cannot learn from their prior entry experience. Although information on host country markets may be accessible from outside these countries, firms that internationalize rapidly may not be able to use it well if their absorptive capacity is limited. A firm's absorptive capacity in acquiring foreign market information is largely a function of the firm's prior related knowledge (Cohen and Levinthal, 1990). Without a stock of such knowledge, which is history-dependent and a by-product of a firm's routine operations, a firm might not be able to acquire enough

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Casson (1996) modeled the choice between joint ventures, licensing agreements, and mergers. In their model,

knowledge to internationalize effectively. Moreover, the existence of time compression diseconomies (Dierickx and Cool, 1989) means the quality of knowledge a firm can utilize when it internationalizes rapidly may be inferior to that of a firm that accumulated its stock of relevant knowledge over a long period of incremental expansion. Vermeulen and Barkema (2002) found that the number of international expansions a firm undertook over a given period negatively moderated this firm's increased profits that resulted from internationalization. Thus, the conventional wisdom on incremental internationalization predicts that a rapid international expansion strategy will lead to poor firm performance. We thus propose:

> **Proposition 1:** A rapid international expansion strategy will lead to poor firm performance.

RAPID INTERNATIONAL EXPANSION STRATEGY

Given conventional wisdom, why do firms internationalize rapidly rather than use an incremental approach? A possible reason is related to how a firm can reduce its market uncertainty, an issue that underlies the theoretical foundation of the incremental model. Specifically, this model argues that (1) firms should build up their foreign operations gradually to reduce the uncertainty that stems from operating in unfamiliar environments, (2) incremental expansion allows firms to take advantage of the knowledge they acquire early to reduce market uncertainty later, and (3) learning by doing is probably the only way to gain such knowledge. Yet, although insufficient knowledge of foreign markets can be a major obstacle to international operations, recent developments such as telecommunication technologies and the Internet make it much easier for firms that internationalize late to access such knowledge. These firms can also acquire some subtle knowledge of new markets by

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this choice depends on the pace of technological innovation and the globalization of markets.

hiring professional consultancies. Further, they can often access knowledge about foreign markets that is experiential or tacit, which can be gained only through direct experience, by hiring talented and experienced managers.

The most critical limitation of the incremental internationalization theory is that it focuses only on the benefits, not the costs, of the incremental approach. These costs, especially those associated with *competitive risks*, can be substantial because of the elapsed time the incremental approach entails. It is always easier to enjoy the benefits of learning from slow, steady, and orderly international expansion. In an increasingly global and competitive economy, however, few firms have the luxury of internationalizing incrementally. Firms that internationalize late also face competitive resistance from early movers, which have entrenched positions in foreign markets. Because the incremental internationalization theory was based on the experience of Swedish and Japanese multinationals that internationalized early, the incremental model emphasizes "learning by doing" as the only way to reduce market uncertainty and thereby highlights the hazard of failure during foreign market entry. It assumes that once firms acquire knowledge of foreign markets by investing incrementally, they succeed in those countries.

The performance of rapid internationalization strategies may depend on the magnitude of competitive risks. Below, we outline contingencies that may affect the performance of firms that pursue rapid international expansion. We examine competitive risks generated from general globalization pressures, as well as from home and host-country rivals, and explore how these risks may make a rapid internationalization strategy a viable option for firms that internationalize relatively late.

Global competitive pressures

The success of a rapid international expansion strategy may depend on the competitive risks in an industry. The literature on firm internationalization emphasizes the

role of industry characteristics in shaping a firm's international strategy. Each industry has its unique characteristics, which in turn significantly influence the behaviors of firms that compete in the industry (Porter 1985).

With the advent of improved telecommunication technologies, the Internet and the increasing scale economies in production and R&D, more industries have become global. However, the pressure to globalize varies significantly across industries, depending on the magnitude of the competitive advantages of global operations (Kobrin, 1991). For industries such as automobiles and microelectronics, being global is mandatory; purely domestic firms in those industries have become less competitive. Firms that can globally source, develop, manufacture, and sell their products and services may have strong competitive advantages over their less internationalized rivals. As firms expand their foreign activities, the industries they are in become globalized, which in turn pressures these firms' competitors to globalize.

This pressure can be both instrumental and mimetic in nature (DiMaggio and Powell, 1983). MNCs with global operations may achieve scale economies that pressure other firms to achieve a similar global position. Thus, in a globalizing industry, firms will be more likely to undertake FDI in order to secure the benefits of scale economies and remain competitive with their rivals. As a consequence, industry-level globalization pressures may significantly affect the success of a rapid international expansion strategy. For instance, the automobile industry has gone through massive restructuring during the last two decades, leading to numerous cross-border mergers and acquisitions. The key driver for such integration was the huge scale economies in new product development and manufacturing. Small, domestically oriented firms cannot compete with global rivals because they cannot match their rivals' costs and scale. Yet, although a firm that adopts an incremental approach may reduce its hazard of failure in internationalization, it may expose itself to greater risk if it does not attain global

scale quickly. Firms that globalize may feel compelled to enter multiple markets over a short period in order to build up their global operations quickly.

Thus, rapid internationalization may be an effective way to offset the competitive risks that stem from being a late mover that is compelled to operate globally. Thus,

> **Proposition 2:** A rapid internationalization strategy in globalized industries will lead to better firm performance.

Home country competitive pressures

The performance of a rapid internationalization strategy may also depend on the competitive risks that exist among firms from the same home country. The incremental internationalization theory holds any competitive rivalry constant, since it has an insular focus on a focal firm against market uncertainties in foreign countries. It does not consider whether a firm might react to the actual or expected behaviors of its rival firms. Consequently, it excludes strategic choice options when it considers the process of firm internationalization (Melin, 1992).

The international business literature has long discussed competitive interactions among rivals. The bunching pattern of foreign direct investment (i.e., the follow-the-leader effect) is often observed among firms in oligopolistic industries (Knickerbocker, 1973). If an industry leader establishes a subsidiary in a foreign country where other firms in the same industry are not present, its competitors make similar investments soon after to counter the competitive threat posed by the new situation.

This strategic interest in avoiding the competitive risks of falling behind the leader can be applicable to all internationalizing firms in a home country, where competitors in the same industry are known to benchmark their internationalization against each other closely (Guillen, 2003). If one firm internationalizes and its home-country competitors follow it, the latter firms must decide how to catch up in order to prevent it from using high profits obtained from its international operations during its period of first-mover advantage to invest and compete elsewhere, including the home country. If followers expand incrementally, they

might not be able to offset their rivals' early-mover advantage. Under this circumstance, rapid internationalization may be an effective strategy, especially when a focal firm responds quickly to its domestic rivals' internationalization.

> **Proposition 3:** A rapid internationalization strategy will lead to better firm performance when the lead-time between a firm's domestic rivals' internationalization and its own is reduced.

Host country competitive pressures

The competitive pressures in the host country may also moderate the relationship between rapid internationalization strategy and firm performance. The importance and magnitude of host-country competitive pressures depends on whether first-mover advantage is valuable (Lieberman and Montgomery, 1988, 1998). First or early movers may incur disadvantages, such as high market-development costs, that are not borne by later movers. Yet such benefits must be weighed against the costs of delay. When other multinationals have already entered a market and built huge entry barriers, a late mover may be hard-pressed to compete against them. In contrast, early movers can define the competitive rules in a variety of areas (Porter, 1985). Thus, firms may prefer internationalizing rapidly to become early movers in those countries so that it can preempt existing or potential competitors.

The difference in costs associated with internationalizing early or later varies significantly, depending on a host country's competitive risks. In many developed countries, multinationals have already built strong footholds, making the competitive environment for existing and potential entrants very risky. The cost of delay for expanding into those countries is much lower. In contrast, the competitive risk associated with expanding into less-developed countries that multinationals have neglected, as well as in many transitional economies that have not opened their markets until recently, is much lower. Thus, the costs of being late movers are larger in emerging markets or transitional markets than they are in developed markets.

Pan, Li, and Tse (1999) expect strong first-mover advantages accrue to firms that enter emerging markets since those markets have long been isolated and thus possess many potential opportunities and needs. Using Sino-Japanese JVs in China as an example, Isobe, Makino, and Montgomery (2000: 478) concluded that "a wait-and-see approach may not always be a better strategy in emerging economic regions." Focusing on the change of FDI policies in emerging economies, Beamish and Chung (2005) concluded that the proactive pursuit of opportunities in emerging markets can be worthwhile even during times of economic crisis. Indeed, Luo and Peng (1998) found first-mover advantages increased over time in transitional economies.

To conclude, rapid internationalization may be an effective strategy when it is combined into entries in markets not tapped by other foreign multinationals. We thus propose:

> **Proposition 4:** A rapid internationalization strategy will lead to better firm performance when a firm focuses on markets in which there are fewer foreign competitors.

RESEARCH METHODS

Sample

The sample for this study consists of Korean firms' direct investments in manufacturing sector since their very first investments in 1970, until 1996. When Korean firms invest overseas, they are required by law to report their investments to the government-owned Import-Export Bank of Korea, which maintains a database on the names of investors, dates, amounts, and locations of investing firms' activity. The Import-Export Bank of Korea also keeps track of each investment and maintains a database on exit activity. While we have data on Korean firms' entries up to 2003, we selected only entries that took place while Korea was an emerging economy. Therefore, we selected entries until December 1996, when Korea became a member of the OECD, and might be no longer viewed as an emerging economy. We

also, trace Korean firms' exits out of those pre-1997 entries up to 2003.

We believe Korean firms' investments prior to 1997 provide an interesting empirical setting for evaluating the performance of the rapid international expansion strategies of multinationals from emerging market countries. First, Korea was a very successful emerging market, and had rapidly industrialized since the 1960s. Second, compared to U.S., European and Japanese multinationals, Korean firms expanded internationally relatively late. As shown in Figure 1, Korean firms' international investments prior to the late 1980s were miniscule. Until then, Korean firms relied mainly on exports of locally manufactured products. They began investing abroad in the late 1980s when domestic labor disputes intensified and they faced tough competition from low-wage countries such as China and Indonesia.

Insert Figure 1 around here

Although the Import-Export Bank of Korea database provides the entire population of Korean firms' foreign direct investments, we focused only on manufacturing investments in our sample because manufacturing and non-manufacturing sectors require different types of experience, knowledge, workers, and other inputs. We dropped cases for which investors were individuals rather than firms, cases in which firms owned less than 10%, and cases when the firms were non-statutory audited because financial data for them were not available. The Korea Information Service, a leading credit rating agency in Korea that is equivalent to Standard & Poor's or Moody's, provides corporate profiles and financial information on all listed companies and unlisted companies with assets worth more than 6 billion won (referred to as "statutory audited companies").

For 1970-1996, the Import-Export Bank of Korea database lists 1,459 investments in the manufacturing sector by 891 firms. Several firms in our sample invested repeatedly during our study period. Daewoo Corporation invested 54 times, Samsung Electronics invested 46

times, and LG Electronics invested 32 times, etc. The most popular destinations of Korean firms' foreign direct investment were China (486 cases), USA (176 cases), Indonesia (162 cases), the Philippines (67 cases) and Vietnam (63 cases), Malaysia (54 cases), and Thailand (42 cases). In all, Korean firms invested in 78 countries between 1970 and 1996. Among the 1,459 entries, 632 were exited by 2003, for a 43% exit rate.

Measures

In order to study the international performance of Korean manufacturing firms, we collected data on firm-level, subsidiary-level and country-level factors.

Subsidiary exit as an indicator for international performance

It is difficult to gauge the performance of an internationalization strategy because there is no proper performance indicator for both the subsidiary and the parent firm levels. In most cases, overseas subsidiaries are privately-held, and most parent firms do not disclose their financial performance. Moreover, even when financial information is available, subsidiary-level financial performance is affected by internal transfer pricing and often does not reveal a subsidiary's true performance. Measuring international performance at the parent firm level is also difficult because parent-level performance is affected by many factors other than international operations that are difficult to control for. In most cases, firms do not report profits from domestic and international operations separately. Under such constraints, firms' international performance might be better indicated by survival/exit of the overseas manufacturing subsidiaries, as represented by closing, liquidation, or divestiture.

Several studies have examined survival/exit from incumbent domestic businesses (Duhaime and Grant, 1984; Ravenscraft and Scherer, 1991; Chang, 1996; Sharma and Kesner, 1996). Sharma and Kesner (1996) found large-scale entries, especially in differentiated industries, tend to survive longer, but found no evidence that resource fit leads to business turnover. Shaver, Mitchell, and Yeung (1997) examined how foreign firms operating in a host

country generate information spillovers that may improve late entrants' performance, as measured by subsidiary survival. They demonstrated that subsequent foreign entrants learned from earlier entrants' success/failure. Shaver (1998) explored how a subsidiary's performance, again measured by survival, might be related to the entry mode choice. He found no systematic differences between subsidiaries established by greenfield investment and those by acquisition, after controlling for endogeneity.

It is incorrect, however, to attribute subsidiary survival/exit only to subsidiary performance. First, some foreign entries, especially joint ventures, are in effect real options. Kogut (1991) argued that firms seeking to enter foreign markets might initiate joint ventures to learn about local markets and tap local resources. Depending on the performance of their initial entry experience, firms can decide to "exercise a call or put option" by scaling up or exiting the business. Small investments might also be similar to a real option. Given uncertainty in foreign market environments, firms may initiate a small entry as a test. Thus, we need to be careful in interpreting survival/exit from joint ventures and small operations as an indicator for subsidiary performance. Second, some exits may reflect sound strategic decisions but not indicate poor performance. For instance, a firm that has run a low-cost manufacturing operation might divest its foreign operations in a country where labor costs have increased sharply and then relocate. Thus, we need to control for country-level operating environmental factors, such as market attractiveness, labor costs, and currency appreciation, which might lead to exits.

Parent firms' international expansion strategy and controls

We focused primarily on parent firms' internationalization strategies. We measured parent firms' pace of international expansion as *Speed*, measured as the average number of foreign manufacturing subsidiaries divided by the number of years since the firm's first foreign expansion (Vermeulen and Barkema, 2002). For instance, a firm that first invested in

1990 and made a total of 10 investments by 1995 will have a *Speed* score of 2.0. This measure is a time-varying construct, constantly updated at each time t to reflect the total number of foreign subsidiaries starting from the year of its initial investment. In other words, if the speed of a firm's internationalization strategy is high, the parent firm initiated many foreign direct investments in a short time.

We used three measures for competitive risks as moderator variables between the speed of international expansion and a firm's international performance. We measured the industry-level competitive risks that stem from globalization with *Industry Globalization* by adopting indices developed by Kobrin (1991), based on intra-firm resource flows. Kobrin defined the index of global integration as the ratio of affiliate sales to foreign affiliates, plus affiliate sales to parents, plus parent exports to affiliates, to all foreign affiliate sales plus parent exports for majority-owned non-bank affiliates of non-bank parents (1991:21). We adopted Kobrin's index based upon the 1989 Benchmark Survey of U.S. Direct Investment Abroad at the 3-digit SIC level.[3] This measure reflects the requirements for rapid global integration at the industry level. For instance, the electronics industry globalized earlier and more fully than other industries did. Several subfields of electronics, including radio, televisions, computers, communications equipment, and electronics components (which includes semiconductors) are characterized by high R&D intensity and economies of scale. For these reasons, many subfields within electronics ranked as the most globalized among the 56 manufacturing 3-digit subfields studied by Kobrin.

Second, we measured the competitive risks that stem from competition with domestic rivals with the *Lead-time of Home Country Rivals*, defined as the difference between the calendar year when a focal firm made its first direct foreign investment and the year when the focal firm's rivals in the same industry, defined by the 2-digit Korean SIC industry, made

[3] These were based on data from U.S. firms, but are assumed to be a valid measure to capture industry

their first foreign direct investments. For instance, if a firm first invested in 1992 and its domestic rival first invested in 1988, the lead-time is 4 years. When a focal firm was the first to make a foreign direct investment in another country, the lead-time of its home-country rivals is zero.

Third, we measured the competitive risks with other foreign multinationals in each host country with the *Foreign Rivals in Host Countries*, defined as the incoming foreign direct investments deflated by the GDP at time t. Since a firm might have made multiple entries until time t, we calculated the averages of incoming foreign direct investments over GDP in all host countries until time t.

We used several indicators to operationalize a firm's resources that were necessary for helping a new foreign subsidiary to survive. We measured *R&D and Advertising Intensities* of parent firms, defined as R&D and advertising expenditures divided by sales, at time t. These variables measured the availability of intangible technological and marketing resources that foreign subsidiaries could use. We expect that as parents possess more intangible resources, it is more likely their foreign subsidiaries will survive. We also measured parent firms' financial resources with *Debt/Assets* as firms with less debt may have enough financial resources to support their foreign operations. We measured *Firm Size* by total firm assets (in thousands Korean won) at time *t*, which we log-transformed to control for any firm size factors. *Firm Age* is the number of calendar years since a firm was established to control for age and experience. Many of the firms in our sample were affiliated with large business groups, known as chaebols (Chang, 2003). The Korean government annually identifies the 30 largest business groups according to asset size in the non-financial sectors and publishes a listing of their affiliates under the "Act for Monopoly Regulation and Fair Trade Promotion (known as the Fair Trade Act)" in order to block anti-competitive behavior. We identified group

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globalization.

membership by a dummy variable, *Business Group Affiliation*, which is 1 if a firm is affiliated with a top 30 group and 0 otherwise. A group affiliate's foreign subsidiary may benefit from other group affiliates' operations in the same country and is expected to be more likely to survive.[4]

Subsidiary characteristics

We controlled for two subsidiary factors that may affect subsidiaries' survival. *Investment Size* reflects the size of investments in a foreign subsidiary by a parent in constant US dollars (in millions), which we log-transformed. *Ownership Share* is the share of equity ownership in a foreign establishment. We argue that the larger the investment and the greater the ownership share is, the less likely the parent is to withdraw. Conversely, small investments and investments in which the parent firm has a low equity share may be similar to real options, from which firms are more likely to exit.

Country controls

We included several control variables that may affect a foreign subsidiary's survival. We expected firms would stay in large markets, so we measured the *Growth Domestic Product (GDP)* of each country at time t (in billions), as collected in the World Development Indicators, which is compiled by the World Bank. We collected the hourly *Wages* in the manufacturing sector (in US dollars) at time t to reflect the relative attractiveness of a country as a manufacturing base from the Yearbook of Labor Statistics, published by the International Labor Organization. Comparing hourly wages across countries is not easy because official statistics vary greatly from country to country. When hourly wages were not available, we converted monthly or weekly wages by assuming a 40-hour week. When wages in US dollars

[4] We also explored whether a firm's prior experience in exporting mitigated the hazards of rapid internationalization. A firm's export data are available for only a limited number of listed companies. For this reduced sample, the interaction term between speed and export was not significant. The results are available upon request.

were not available, we converted local wages by dividing them by official exchange rates.[5]

Currency Depreciation was measured by the yearly change of the official exchange rate at time *t.* As the host country local currency depreciates, its price competitiveness in terms of US dollars improves, thus increasing the likelihood of survival. The *Political Hazard* of the respective country at time t where a foreign subsidiary is located was measured by Henisz's (2000) political hazard variable. Henisz (2000) developed a political hazard measure that relies on a simple spatial model of political interaction to derive the extent to which any political actor or the replacement for that actor (e.g., the executive or a chamber of the legislature) is constrained in his or her choice of future policies. This measure also accounts for the extent of alignment across branches of government and the extent of preference heterogeneity within each legislative branch. Thus, his measure of political constraints ranges from zero (most hazardous) to one (most constrained). We measured the political hazards as one minus the original political constraints index by Henisz (2000) to reflect the possibility that the fewer policy constraints a country has, the more political hazards a foreign firm might encounter upon entry.[6] We measure the competitive risks with foreign multinationals in each host country with the *Incoming FDI/GDP*, defined as the incoming foreign direct investments deflated by the GDP at time t, specific to each subsidiary in that country.

In addition, we included 15 industry dummy variables based on the Korean 2-digit Standard Industry Classification (SIC) to control for any industry factors that might have led to subsidiary survival/exit. We also added a time period dummy for 1997-2000 to reflect the Asian Financial Crisis to control for whether there were more exits during the crisis.

Hypotheses

As we discussed earlier, we used exits from foreign subsidiaries as an indicator of

[5] We also measured the per-capita income at time t to reflect the existence of wealthy potential customers, but this variable is highly correlated with the wage variable. To avoid multicollinearity, we thus did not use it.

[6] We employed country risk, compiled by Euromoney, as an alternative measure of risk. The results when we

firms' international performance. A high level of exits from incumbent foreign subsidiaries may denote poor international performance by individual firms. We therefore translated proposition 1 into hypothesis 1, which states that the speed of international expansion will lead to more exits from foreign subsidiaries.

> **Hypothesis 1:** The speed of international expansion will be positively related to exits from foreign subsidiaries.

The following hypotheses explore three kinds of moderators that will affect the proposed relationship between the speed of international expansions and exits from foreign subsidiaries, as specified in hypothesis 1. Hypothesis 2 explores the influence of an industry's global competitive pressures on the relationship between internationalization speed and subsidiary exits. Hypotheses 3 and 4 explore the home and host countries' competitive environments regarding the relationship between internationalization speed and exits from foreign subsidiaries. Figure 2 summarizes the hypothesized relationships.

> **Hypothesis 2:** Industry globalization will negatively moderate the relationship between the speed of international expansion and exits from foreign subsidiaries.

> **Hypothesis 3:** The lead-time of home-country rivals will positively moderate the relationship between the speed of international expansion and exits from foreign subsidiaries.

> **Hypothesis 4**: Foreign rivals in host countries will positively moderate the relationship between the speed of international expansion and exits from foreign subsidiaries

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Insert Figure 2 around here

Methodology

Because we are exploring the relationship between speed of international expansion and firms' international performance as measured by subsidiaries' survival/exits while taking various competitive risk factors as moderators, we employed two separate analyses at the

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used this variable are consistent with those for political hazards.

individual firm and subsidiary levels, respectively. The firm-level analysis explores whether rapid international expansion strategy results in poor firm-level international performance, measured by the count of exits out of existing foreign subsidiaries, at each time t. If a firm divests many subsidiaries, its doing so may reflect the firm's poor international performance. While the firm-level analysis reveals the overall international performance at the firm level, it does not show which individual subsidiaries a firm exited from. Therefore, we conducted another analysis at the subsidiary level, in which we explored what subsidiaries were exited and how soon they were exited, and examined how important the effects of parent firms' rapid international expansion strategy are on the hazards of individual subsidiaries' exits, after controlling for firm-level resources, subsidiary factors, and various host-country contingent factors that may also affect the subsidiary exit.

At the firm level, we used the exit count at time t (e.g., 0, 1, 2, 3….), as a dependent variable and use the Poisson regression model (Hausman and McFadden, 1984).[7] Let the exit count of a firm *i* at time *t+1*, $Y_{i,t+1}$, and $X_{i,t}$ denote a vector of firm-level explanatory variables such as firms' international expansion strategy and other firm level control variables. Thus, if $Y_{i,t+1}$ follows a Poisson distribution, the mean exit count for firm i, $\lambda_{i,t} = E(Y_{i,t+1})$ would equal the variance $V(Y_{i,t+1})$.

$$\lambda_{it} = E(Y_{i,t+1}) = V(Y_{i,t+1}) = \exp[X_{i,t}\beta]$$

Our data set for the firm-level analysis consists of firm-years, starting from one year after the first foreign direct investment, to either 2003, the end of our observation period, or the year when the focal firm exited from its foreign direct investments and no longer had any foreign subsidiary. Among the 891 firms that made any foreign direct investment from 1970 to 1996, 173 firms lacked the financial information or exact industry classification necessary for us to match them with the 3-digit US SIC to calculate the globalization index. The remaining 718

[7] Alternatively, we can use the negative binomial regression model, a variant of the former that can account for

firms generated a total 6,705 firm-year observations. Given the panel data, we employed the random effects Poisson regression technique to control unobserved firm heterogeneity with random effects (Hausman and McFadden, 1984).[8]

To analyze exits of individual subsidiaries at the subsidiary level, we used Cox's proportional hazard model (Cox and Oakes 1984, Kalbfleisch and Prentice 1980). The dependent variable in the hazard model is a hazard rate that denotes the likelihood a subsidiary is exited at each time period. This model presumes hazard rates of individual subsidiaries can be represented as log-linear functions of the various firm-level and subsidiary-level covariates. If h(t; X(t)) is the hazard function for an individual subsidiaries with time-varying covariates X(t), the proportional hazard models specifies this hazard as the likelihood that the observed subsidiary exit event should have taken place, conditional upon the hazards of all subsidiaries at risk. This formulation leads to the following specification of the likelihood for the *i*th subsidiary:

$$L_i(t)=h_o(t)\exp(\mu_t X(t))/h_o(t)[\sum_{j \in R_t} \exp(\mu_t X(t))],$$

where $h_o(t)$ is the baseline hazard rate at time t; j is an index for subsidiaries at risk at time t (R_t being the risk set); $X_i(t)$ is the time varying covariates for subsidiary i; and μ is coefficients to be estimated. With this formulation, the model calculates the ratio of the hazards as the conditional probability of a subsidiary exit given all other subsidiaries in the same risk set. This model implicitly assumes a multiplicative relationship between the underlying hazard rates and the log-linear function of the covariates (the proportionality assumption). It also assumes that the effect of the covariates upon the hazard function is log-linear. These two assumptions enable the model to leave the baseline hazard unspecified.

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heteroscedasticity. There seems to be no need to control for this heterogeneity in our data set.

[8] The fixed effects model, an alternative way of handling panel data, requires at least one observation for firm *i* to be non-zero (Green, 2003, p. 747), which means firms that did not record any exit during the study time

Since the proportional hazard model does not specify the baseline hazard, there is no bias incurred by misspecifying the stochastic process of the underlying hazard rate. This generality is achieved by assuming further that the baseline hazard rate is the same for all firms in the risk set. From this assumption, $h_o(t)$ cancels out. We can rewrite the likelihood function as:

$$L_i(t)=\exp(\mu_t X(t))/[\sum_{j \in Rt} \exp(\mu_t X(t))].$$

The rewritten likelihood function is equivalent to allowing only the conditional probabilities to contribute to the statistical inferences. Multiplying these probabilities together for each of the distinct time spells gives the partial likelihood function to be maximized. No information on the precise time of entry is required, providing a partial, rather than full, maximum likelihood estimate. Thus, partial likelihood estimation involves an efficiency loss because the exact investment time is not considered. Nevertheless, the estimates are consistent and asymptotically normally distributed. We can interpret the t-values as asymptotically close to the full maximum likelihood estimates. (For more detailed information on the assumptions of the model, see Cox and Oakes (1984).)

There is no left-censoring problem since we included all foreign direct investments made by Korean firms from 1970 onward. Right censoring, caused by truncating the observation period at 2003, is handled by conventional adjustments. Censored observations enter the risk set at each time period under observation, but do not contribute to the numerator of the likelihood function. Among 1,459 foreign direct investments, we lost 326 investments because we lacked key indicators of parent firms' financial information, industry codes, or country level indicators, resulting in 1,033 foreign subsidiaries. 400 out of 1,033 foreign subsidiaries were exited by 2003, resulting in 7,349 distinct time spells (i.e., one year). By design, all our explanatory variables are time varying, except for industry globalization, home-country latecomer, and two subsidiary controls for investment size and ownership,

period would be excluded. We therefore use the random effects model in this study.

which do not vary over time.

RESULTS

Table 1 presents descriptive statistics and Table 2 shows results from the random effects Poisson regression models in which the dependent variable is the exit count at time t+1 at the individual firm level. Model (1) in Table 2 shows a baseline model in which we include only firm-level control variables. Model (2) includes firms' internationalization speed variable and three contextual variables, industry globalization, lead-time of home country rivals, and foreign rivals in host countries. Models (3)-(5) explore interaction effects between internationalization speed and the three contextual variables. The chi-squared statistics show good model fits.

Insert Tables 1 and 2 around here

Model (2) tests hypothesis 1. International expansion speed is positively significant for exit count at time t at the individual firm level, showing there are more exits from foreign subsidiaries of firms that pursued rapid internationalization. The result suggests potential hazards associated with rapid internationalization. The size of coefficient implies, for instance, that a firm with twice the speed of another firm is expected to have $1.43(=e^{0.36})$ times more exits out of the same number of foreign subsidiaries. This confirms hypothesis 1.

Model (3) includes the interaction between speed and industry globalization. The interaction term is negatively significant, corresponding to hypothesis 2. The main effect of speed remains positively significant. This result suggests that while rapid international expansion may cause a high rate of subsidiary failures, it can be justified in industries that are characterized by high level of global integration. The coefficient of the interaction term, -2.16, is much bigger than the direct effect of speed (0.88) is, which indicates the positive impact of speed on the subsidiary exit might be neutralized or even negated in industries that

have a high level of global integration.

Likewise, model (4) explores the interaction between speed and the lead-time of home-country rivals. The interaction term is positively significant, suggesting firms that internationalized late relative to their domestic rivals have higher rates of subsidiary failure than do firms that responded quickly to domestic rivals' internationalization, confirming hypothesis 3. The direct effect of speed becomes insignificant when it is introduced with the interaction term. While the direct effect of the lead-time of the home-country rival variable is negative, if firms in the same industry all internationalize rapidly, the combined effects of direct and interaction effects could be positive when international expansion is rapid. The results suggest that rapid international expansion is a more favorable strategy for firms that quickly respond to domestic rivals' internationalization moves.

Model (5) explores the interaction effects between speed and foreign rivals in host countries. The interaction term is positively significant at the 10% level. This result means rapid international expansion is detrimental when it is directed to markets with a high level of overall incoming foreign direct investments. Conversely, rapid international expansion is more effective when it is directed to markets where there is a low level of incoming foreign direct investments, such as emerging markets. Again, the direct effect of speed is insignificant and the direct effect of foreign rivals in host countries is negatively significant. The combined effects of direct and interaction effects, when holding constant the foreign rivals in host countries variable, is negative when speed is low, but become positive when speed is high.

Among other firm-level control variables, firm size and R&D intensities are positively significant for exits, and firm age is negatively significant for exits only in model (1) when no firms' internationalization strategy variables are included. They are insignificant in the rest of the models. Business group membership variable is positively significant in all

models, suggesting that firms affiliated with large business groups in Korea are likely to have more exits than non-group affiliates do.

Table 4 shows the results from the Cox proportional hazard models of exits from individual subsidiaries, and table 3 shows the descriptive statistics. Compared to the firm-level analysis, which shows only the magnitudes of subsidiary exits by counting their cases at time t, this subsidiary-level hazard modeling of exit decisions indicates how various factors such as parent firms' overall internationalization strategies, parent firms' resources, subsidiary factors and host country factors jointly determine the exit decisions of each individual subsidiary. Subsidiary-level modeling thus lets us observe the impact of a parent firm's international strategy on the performance of an individual subsidiary, after controlling for other firm, subsidiary and host country factors that may also affect the exit decision.

Model (1) in Table 4 shows a baseline model without any hypothesized variables. Model (2) includes only direct effects, and models (3)-(5) include interaction terms separately, analogous to our models in Table 2. The sign and significance levels of models in Table 4 are consistent with those of the models in Table 2. The direct effects of parent firms' internationalization speed positively affects the exit of their individual subsidiaries, which means that subsidiaries of firms that internationalized rapidly are more likely to exit, probably because they could not benefit from learning from prior entry experiences. This result confirms hypothesis 1.

The interaction term between speed and industry globalization is negatively significant, corresponding to hypothesis 2, suggesting that the potential hazard of rapid internationalization strategy might be mitigated in industries that have a high level of global integration. The interaction terms between speed and the lead-time of home-country rivals and foreign rivals in host countries variables are positively significant, consistent with hypotheses 3 and 4, indicating that a rapid internationalization strategy can be more effective

when it is pursued by firms with less lead-time of their home-country rivals, and when it is targeted for markets not tapped by other foreign multinationals, such as emerging markets.

Among firm-level control variables, business group membership variable is weakly and positively significant in models (1) and (2), but is insignificant in the other models. Subsidiaries in which the parent has large investments and/or a large equity share have lower exit rates (higher survival rates), reflecting high commitment. These variables control for real option investments, for which exit might not indicate poor performance. We also found Korean firms are more likely to exit a subsidiary in a country that has high labor costs. The size of GDP and currency depreciation, political hazards, and the degree of incoming FDI over GDP are insignificant.

Insert Tables 3 and 4 around here

DISCUSSIONS AND CONCLUSIONS

Kim Woo-Joong, the ex-chairman of the Daewoo Group, once commented, "Many of my businesses feel great pressure to globalize instantly. For instance, in the automobile industry, people say only the top 10 or top 6 can survive. If we do not reach a global scale fast enough, we will go bankrupt eventually. I would rather go bankrupt after trying a global game rather than wait and sit for a slow bankruptcy…… It was a blessing for us that many countries were under Communist control until very recently, although that might sound bad to the people who suffered there. Otherwise, there would have no markets left for latecomers like us to enter. That is the reason why we focus on emerging markets."

The incremental internationalization theory has long been conventional wisdom in international business research. The theory is intuitively appealing and simple. Yet it may sound like a luxury to managers of firms that internationalize late. To them, their businesses

might not survive unless they go global immediately.

This study attempts to narrow the gap between theory and reality. It addresses the boundary conditions of this theory and proposes some alternative approaches. The incremental internationalization theory has several important assumptions that may limit its ability to explain the internationalization of late movers such as enterprises in emerging markets. For instance, it emphasizes learning by doing and does not allow for the possibility that firms might be able to acquire some codified knowledge by studying laws and regulations of the host country and rely on tacit knowledge by hiring talented and experienced managers.

In addition, this theory focuses only on reducing market uncertainty and neglects competitive risks, which can pose great hazards to firms that internationalize incrementally. Our study indicates that incremental internationalization may be more applicable when firms internationalize early or when they have advantages strong enough to offset any competitive risks that stem from expanding incrementally. This theory may have less to say, however, about firms that face great pressure to globalize or want to have an early-mover advantage.

We also propose an alternative approach to incremental internationalization, namely the rapid internationalization strategy. This study is, to our knowledge, the first large-scale empirical work that explores this alternative. We found that rapid internationalization can be hazardous, as incremental internationalization theory correctly notes, but it may be a good strategy for firms that pursue internationalization relatively late, such as those from emerging market countries.

As does the incremental approach, rapid internationalization strategy has boundary conditions. First, it may be more appropriate if a firm's industry is globalizing very rapidly and the firm is fighting against time (Kobrin, 1991). In such industries, the competitive risks of incrementalism may outweigh any gains from reduced market uncertainties. Thus, industry globalization clearly enhances the efficacy of rapid internationalization strategy. Second, first

(or early) mover advantages may also make this strategy more appropriate. Rapid internationalization can be more effectively pursued by firms that are early movers or that respond quickly to domestic rivals' internationalization. A rapid international expansion strategy also can be more effective in countries where there are fewer foreign competitors, such as emerging market countries.

Further, a rapid internationalization strategy may be more useful for firms that have greater absorptive capacity and can tap knowledge outside their own experience. Rapid internationalization necessarily incurs time compression diseconomies (Dierickx and Cool, 1989), which can be reduced for firms with great absorptive capacity. A firm that facilitates sharing of knowledge or know-how can determine such capacity. Firms can also tap external sources of knowledge via hiring talented and experienced professional managers and consultants, thereby compressing internationalization without incurring additional risk.

This study has several limitations. First, it focused on the speed of international expansion. More elaborate measures of non-incremental internationalization may warrant future study. Second, this study could not consider management styles and processes, which might have affected the speed of internationalization, as well as how firms handled the higher risks associated with non-incremental strategies. The effective management of risks and speedy expansion also merits further study. Third, future studies should expand the scope of the sample by including not only firms from developing companies but also firms from developed countries, such as "born global" firms, which began internationalizing only recently. Fourth, future studies should develop additional host-country control variables, such as market concentration, that may affect foreign entrants' performance.

This study indicates that rapid international expansion can be a valuable strategic alternative for firms that internationalize late, especially firms from emerging markets. Yet it suggests firms should execute this strategy carefully in order to avoid excessive risk, which

may negatively affect their international performance. An important practical implication for emerging market enterprises is that rapid internationalization is a “must” in globalized industries. By moving quickly, firms can reduce the hazard of failure and improve their international performance in such industries. Firms from emerging markets also should quickly catch up with their domestic rivals in internationalization. They should also choose to pursue this strategy in other emerging markets rather than in well-established markets in developed countries. Moreover, managers should balance between market uncertainty and competitive risks when they determine how quickly to expand internationally, when to start, and where to enter.

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Figure 1. Korean firms' entries until 1996 and their exit activities until 2003

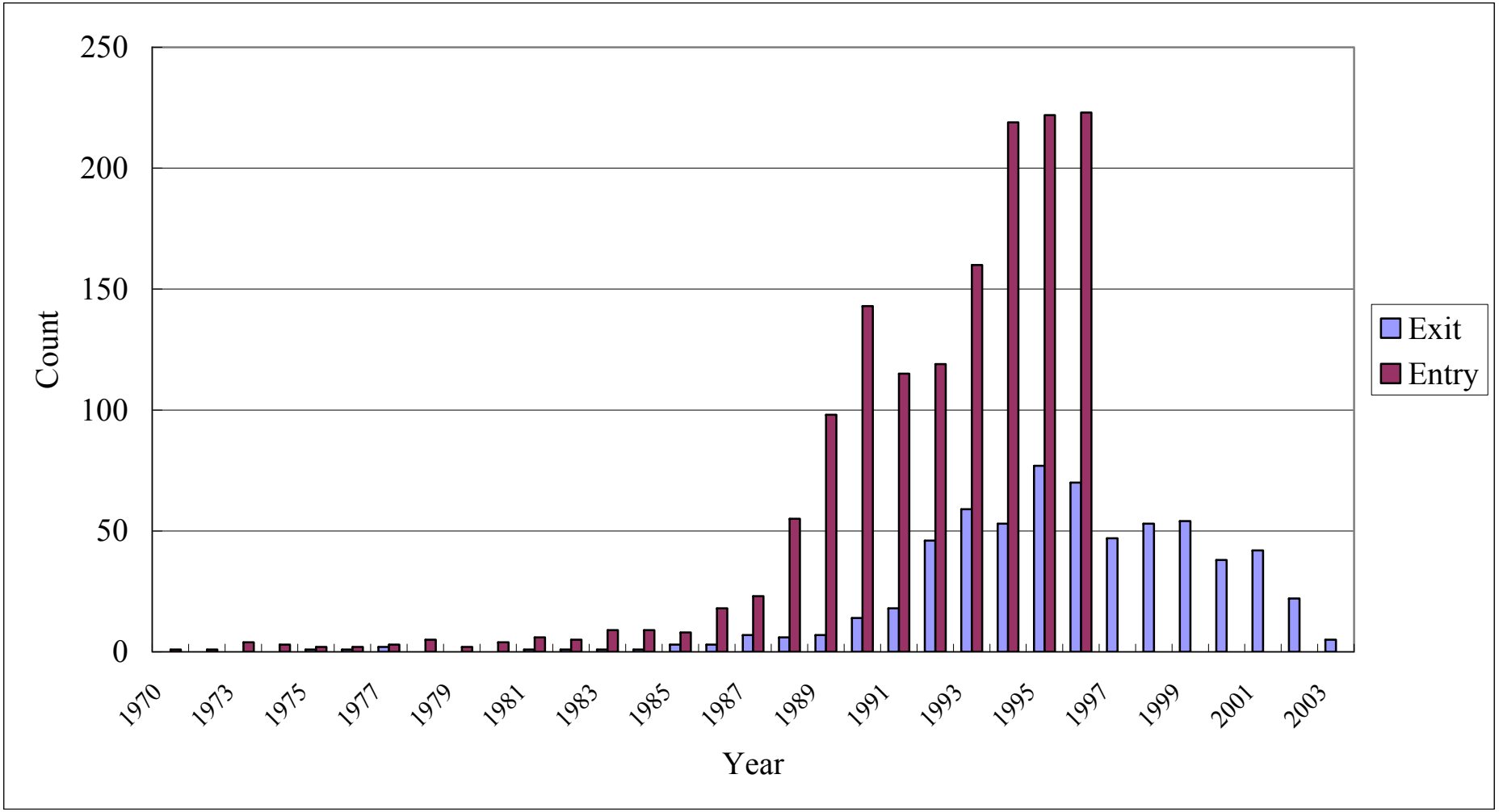

Figure 2. Hypothesized relationship

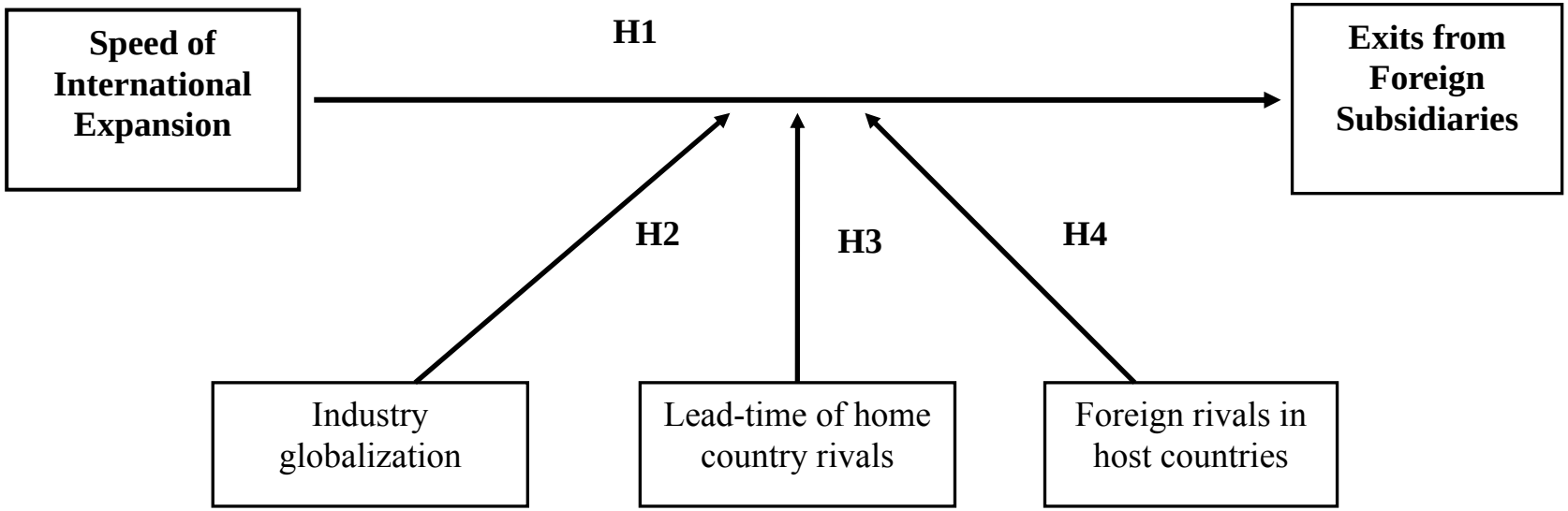

Table 1 Descriptive statistics for firm-level exit count models

Variable	Mean	Std. Dev	Min	Max
(1) Exit count	0.06	0.30	0	7
(2) Speed	0.36	0.36	0.03	4
(3) Industry globalization	0.23	0.11	0.08	0.47
(4) Lead-time of home country rivals	11.63	8.69	0	26
(5) Foreign rivals in host countries	0.03	0.04	-0.10	0.93
(6) Accumulated entry count	1.68	2.48	1	46
(7) Firm size	17.69	2.00	10.35	24.02
(8) R&D intensity	0.002	0.01	0	0.14
(9) Advertising intensity	0.004	0.01	0	0.21
(10) Firm age	22.68	12.2	0	87
(11) Debt/asset	0.78	0.41	0.05	5.48
(12) Business group membership	0.15	0.36	0	1

N=6,705 firm-year observations

Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	1.00											
(2)	0.20	1.00										
(3)	0.03	0.10	1.00									
(4)	-0.07	-0.16	-0.03	1.00								
(5)	-0.03	-0.01	0.00	0.09	1.00							
(6)	0.40	0.41	0.11	-0.10	-0.02	1.00						
(7)	0.12	0.13	0.14	-0.19	0.02	0.37	1.00					
(8)	0.14	0.22	0.21	-0.21	-0.01	0.24	0.22	1.00				
(9)	0.03	0.12	0.00	-0.17	0.02	0.05	0.12	0.19	1.00			
(10)	0.02	-0.07	-0.01	-0.05	0.01	0.16	0.53	0.01	0.06	1.00		
(11)	-0.01	-0.04	-0.08	0.02	-0.01	-0.03	-0.04	-0.05	0.01	0.00	1.00	
(12)	0.12	0.17	0.10	-0.13	-0.02	0.29	0.59	0.18	0.06	0.24	0.08	1.00

Table 2 Random effects Poisson regression models of exit counts (t+1) from foreign direct investments at the firm level

	Models	(1)	(2)	(3)	(4)	(5)
Hypo-thesized relation-ship	Speed (t) (H1)		0.36 (0.12)**	0.88 (0.25)***	0.07 (0.17)	0.11 (0.18)
	Speed (t) x Industry Globalization (H2)			-2.16 (1.02)*		
	Speed(t)x Lead-time of home rivals (H3)				0.03 (0.01)*	
	Speed(t)xForeign rivals in host countries(t)(H4)					9.79 (5.20)†
Parent firm controls	Industry Globalization		1.36 (1.29)	2.28 (1.36)†	1.36 (1.30)	1.32 (1.29)
	Lead-time of home country rivals		-0.03 (0.01)***	-0.03 (0.01)***	-0.04 (0.01)***	-0.03 (0.01)***
	Foreign rivals in host countries (t)		-4.74 (2.41)†	-4.82 (2.42)*	-4.64 (2.41)†	-8.70 (3.22)**
	Accumulated entry count (t)		0.06 (0.01)***	0.07 (0.01)***	0.06 (0.01)***	0.06 (0.01)***
	Firm size (t)	0.18 (0.04)***	0.05 (0.04)	0.06 (0.04)	0.05 (0.04)	0.06 (0.04)
	R&D intensity (t)	17.18 (3.35)***	2.90 (3.75)	4.78 (3.81)	5.77 (3.84)	3.75 (3.78)
	Advertising intensity (t)	1.98 (3.50)	-2.59 (3.97)	-2.58 (3.98)	-2.33 (3.92)	-2.56 (3.93)
	Firm age (t)	-0.01 (0.01)*	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
	Debt/assets (t)	-0.18 (0.15)	-0.10 (0.15)	-0.09 (0.15)	-0.09 (0.15)	-0.11 (0.15)
	Business group membership (t)	0.54 (0.16)***	0.50 (0.16)**	0.49 (0.16)**	0.48 (0.16)**	0.50 (0.16)**
	-2 Log-likelihood	-1547.18	-1486.04	-1483.64	-1483.50	-1484.35
	Wald chi-sq. (d.f.)	184.84 (22)***	712.69 (27)***	714.32 (28)***	713.75 (28)***	713.34 (28)***
	No of obs (no of firms)	6,705 (718)	6,705 (718)	6,705 (718)	6,705 (718)	6,705 (718)

Note: ***: p<0.001, **: p<0.01, *: p<0.05, †: p<0.10. 15 industry dummies and the Financial Crisis (1997-2000) time period dummy are not shown.

Table 3 Descriptive statistics for Cox hazard model of subsidiary exits at the subsidiary level

Variable	Mean	Std. Dev	.	Min	Max
(1) Speed	0.62	0.65		0.04	4.00
(2) Industry globalization	0.25	0.11		0.08	0.47
(3) Lead-time of home country rivals	10.38	8.30		0.00	26.00
(4) Foreign rivals in host countries	0.03	0.02		-0.10	0.10
(5) Accumulated entry count	4.83	8.86		1	46
(6) Firm size	18.63	2.40		10.35	24.02
(7) R&D intensity	0.01	0.01		0.00	0.14
(8) Advertising intensity	0.01	0.01		0.00	0.21
(9) Firm age	24.60	11.55		0.00	80.00
(10) Debt/assets	0.75	0.37		0.05	5.48
(11) Business group membership	0.28	0.45		0	1
(12) Investment size	7.85	1.56		0.24	13.42
(13) Ownership	0.82	0.26		0.10	1
(14) GDP	1.51	2.49		0.00	10.95
(15) Wage	3.43	7.11		0.00	57.92
(16) Currency depreciation	0.09	0.48		-0.14	18.40
(17) Political Risks	0.80	0.24		0.28	1.00
(18) Incoming FDI/GDP	0.04	0.08		-0.12	0.94

N=7,349 distinctive time spells

Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)	1.00																	
(2)	0.23	1.00																
(3)	-0.19	-0.10	1.00															
(4)	-0.08	-0.07	0.24	1.00														
(5)	0.75	0.26	-0.18	-0.12	1.00													
(6)	0.49	0.28	-0.26	-0.06	0.62	1.00												
(7)	0.59	0.27	-0.24	-0.10	0.59	0.43	1.00											
(8)	0.27	0.06	-0.18	-0.03	0.18	0.19	0.30	1.00										
(9)	0.08	0.02	-0.07	-0.05	0.23	0.55	0.03	0.07	1.00									
(10)	-0.03	-0.06	0.06	0.05	-0.04	-0.02	-0.05	-0.02	-0.01	1.00								
(11)	0.45	0.21	-0.19	-0.06	0.51	0.71	0.37	0.13	0.33	0.09	1.00							
(12)	0.18	0.13	-0.13	-0.03	0.26	0.43	0.17	0.04	0.23	-0.03	0.25	1.00						
(13)	-0.05	-0.04	0.13	0.02	-0.07	-0.22	-0.06	-0.01	-0.19	0.02	-0.22	0.10	1.00					
(14)	-0.01	0.07	-0.03	-0.19	0.04	0.09	0.05	0.03	0.02	-0.06	0.05	0.06	-0.01	1.00				
(15)	0.11	0.12	-0.12	-0.28	0.08	0.14	0.14	0.11	-0.01	-0.04	0.13	0.11	0.03	0.73	1.00			
(16)	0.08	0.01	-0.05	-0.04	0.09	0.06	0.08	0.04	0.01	0.00	0.03	0.02	-0.01	-0.08	-0.07	1.00		
(17)	-0.10	-0.07	0.13	0.23	-0.11	-0.16	-0.13	-0.04	-0.10	0.10	-0.14	-0.03	0.10	-0.26	-0.36	0.01	1.00	
(18)	-0.04	-0.04	0.04	0.19	-0.01	0.03	-0.04	-0.03	0.03	-0.02	0.00	-0.02	0.02	-0.13	-0.13	-0.03	-0.13	1.00

Table 4 Cox proportional hazard models of exit from individual subsidiaries

	Models	(1)	(2)	(3)	(4)	(5)
Hypo-thesized relation-ship	Speed (t) (H1)		0.29 (0.15)**	0.80 (0.27)**	-0.15 (0.26)	-0.05 (0.25)
	Speed (t) x Industry Globalization (H2)			-2.13 (1.05)*		
	Speed(t)x Lead-time of home rivals (H3)				0.04 (0.01)**	
	Speed(t)xForeign rivals in host countries(t)(H4)					11.43 (5.48)*
Parent firm controls	Industry Globalization		0.67 (1.34)	1.50 (1.40)	0.55 (1.36)	0.57 (1.35)
	Lead-time of home country rivals		-0.02 (0.01)**	-0.02 (0.01)**	-0.04 (0.01)***	-0.02 (0.01)**
	Foreign rivals in host countries (t)		-3.53 (2.83)	-3.47 (2.83)	-3.52 (2.85)	-8.42 (3.85)
	Accumulated entry count (t)		$-0.40x10^{-2}$ (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
	Firm size (t)	0.06 (0.04)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)
	R&D intensity (t)	4.74 (3.34)	-0.72 (3.97)	1.41 (4.10)	2.86 (4.15)	0.90 (4.01)
	Advertising intensity (t)	0.72 (3.48)	-1.43 (4.00)	-1.39 (4.02)	-1.57 (4.00)	-1.82 (4.00)
	Firm age (t)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
	Debt/assets (t)	-0.21 (0.17)	-0.17 (0.17)	-0.16 (0.17)	-0.17 (0.16)	-0.19 (0.17)
	Business group Membership (t)	0.29 (0.17)†	0.26 (0.17)†	0.27 (0.18)	0.25 (0.18)	0.25 (0.18)
Subsi-diary controls	Investment Size	-0.22 (0.03)***	-0.22 (0.03)***	-0.22 (0.03)***	-0.21 (0.03)***	-0.20 (0.03)***
	Ownership	-0.44 (0.18)*	-0.34 (0.18)†	-0.32 (0.19)	-0.36 (0.19)†	-0.35 (0.19)†
Host country controls	GDP (t)	0.01 (0.02)	0.01 (0.02)	-0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
	Wage (t)	0.02 (0.01)**	0.02 (0.01)**	0.02 (0.01)**	0.02 (0.01)**	0.02 (0.01)**
	Currency depreciation (t)	0.02 (0.09)	0.01 (0.10)	-0.03 (0.10)	0.02 (0.10)	0.01 (0.10)
	Political hazards (t)	-0.31 (0.23)	-0.19 (0.24)	-0.19 (0.24)	-0.18 (0.24)	-0.19 (0.23)
	Incoming FDI/GDP (t)	-0.99 (0.83)	-0.51 (0.73)	-0.90 (0.74)	-0.51 (0.75)	-0.57 (0.77)
	Log pseudo-likelihood	-2537.17	-2529.09	-2527.54	-2525.69	-2527.29
	Wald Chi-sq. (d.f.)	179.13 (29)***	207.27 (34)***	216.26 (35)***	258.58 (36)***	208.45 (36)***
	No of obs (no of subsidiaries)	7349 (1033)	7349 (1033)	7349 (1033)	7349 (1033)	7349 (1033)

Note: ***: p<0.001, **: p<0.01, *: p<0.05, †: p<0.10. 15 industry dummies and the Financial Crisis (1997-2000) time period dummy are not shown. We calculated heteroscadasticity-consistent errors are shown with the same firms with cluster options.