Network Linkages and Location Choice in Foreign Direct Investment

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This paper shows that network linkage is an important determinant of location choice in foreign direct investment (FDI). Network linkages are divided into internal (intra-firm) and external (inter-firm) linkages. External linkages are further separated into strategic and relational linkages. We found that Taiwanese firms are keen on making external linkages, but are indifferent to, or incapable of, making internal linkages through FDI. Strategic linkages motivate Taiwanese FDI in the United States, while relational linkages facilitate Taiwanese FDI in Southeast Asia and China. Small firms are more sensitive to relational linkages than large firms in their choice of FDI location.

INTRODUCTION

Conventional theory views foreign direct investment (FDI) as an attempt to exploit firm-specific assets in a foreign market (Hymer, 1960; Caves, 1971). When the transaction costs of exploiting firm-specific assets through a market arrangement are high, the owner of the assets may then choose to internalize the market transaction through FDI (Buckley and Casson, 1976). The choice of location for FDI is based on the locational advantages that maximize the value of firm-specific assets net of set-up costs (Dunning, 1981; Caves, 1971). In fact, firm-specific advantages, locational advantages and internalization advantages (which represent the

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advantages of hierarchical arrangements over market transactions) are the three ingredients of the eclectic theory of FDI (Dunning, 1981).

According to conventional FDI theory, a firm engaged in FDI must be strong in technological capability, or resourceful in some intangible know-how. Empirical studies examining conventional FDI theory have shown that FDI firms are generally large in size, superior in technology, or unique in their product lines (Horst,1972; Caves, 1974). Weak firms have no place in the field of FDI. FDI is envisaged as an expedition into unfamiliar and treacherous territory where only the strongest predators survive.

In reality, many international investors are seemingly small and weak. For instance, multinational firms originating from developing countries have become a visible force in the world of FDI (Wells, 1983), and small and medium-sized firms have also played significant roles in outward investment (Buckley, Newbould and Thurwell,1988; Kohn, 1997). Do these firms invest for different reasons? Conventional theory explains this phenomenon by attempting to identify firm-specific advantages unique to these seemingly small and weak firms. Possible advantages identified by researchers include superiority in small-scale production, flexibility in switching product lines etc. (Wells,1983). In light of conventional theory, these advantages may be best exploited in a host country with a small domestic market, and hence are suitable for small-scale production, or within an industrial structure embedded with the institutions that can support a flexible production system, such as subcontracting networks.

Gomes-Casseres (1997) and Kohn (1997) have identified a group of international investors, which are small in size, but strong in technological capability, and dominant in certain niche markets. In fact, in the specific segment of the market in which they excel, these firms are relatively large compared to their peers. To maintain their leadership in niche markets, they may venture overseas to exploit new markets, develop new products, and deepen their expertise. For this type of small firms, which pursue a strategy called "deep-niche strategy," the conventional theory can very well interpret the motivation and mechanism of their FDI.

A completely different view of FDI is to interpret it as an attempt to access external resources in order to offset the weaknesses of the investor. Strategic linkage theory (Nohria and Garcia-Pont, 1991) and network approach (Johanson and Mattsson, 1987) fall into this category. Strategic linkage theory views FDI as an attempt to link to some strategic resources which the investor is lacking, but which are available in a foreign country. In other words, it is a quest for some strategic advantages rather than the possession of such advantages that motivates FDI (Lall, 1996). The network approach views FDI as the construction of a link between a domestic network and a foreign network. In both approaches, linkages via FDI are considered to be a strategic choice that enhances, maintains, or restores the investor's competitiveness in a globalized market, rather than a profit-seeking motive aimed at extracting economic rent from a foreign market by exploiting its own strategic assets. Gomes-Casseres (1997) presented evidence to show that when firms are small relative to their rivals and markets, they tend to use network linkages to gain economies

of scale and scope; when they are large in relative terms, they avoid forming alliances with other firms and tend to go it alone (instead of entering into joint ventures) when investing abroad.

Fujita's (1995) survey of small and medium-sized transnational firms found the principal sources of advantage of this group of firms to emanate from their relationships with large firms, in addition to proprietary technology, flexible management, organization and market ability, and reputation. Among various relationships, customer-supplier relationship and producer-distributor relationship are most influential in small and medium-sized firms' growth of sales and FDI. In terms of technological sophistication, firms in high-technology industries are more dependent on network relationships for growth and FDI than their counterparts in low-technology industries.

While there are plenty of empirical studies based on conventional FDI theory, studies based on strategic linkage and networking are rare. Hennart and Park (1994), for example, combined location, governance (firm-specific advantage), and strategic variables to determine Japanese FDI in the United States, but network linkages were completely ignored. The purpose of this paper is to use the strategic linkage theory and network approach to interpret Taiwan's outward FDI. We show that network linkages are indeed an important determinant of locational choice for Taiwanese multinationals. Taiwanese firms are good at exploiting network resources to complement their weakness in internal resources when making FDI. Networking is also an important impetus for Taiwanese firms to embark directly on the risky road of FDI without experience from less risky engagements, such as exporting or licensing.

STRATEGIC LINKAGES AND NETWORKING

Strategic linkage theory contends that firms can gain access to desired strategic capabilities by linking to firms with complementary capabilities, or by pooling their internal resources with firms possessing similar capabilities (Porter and Fuller, 1986; Nohria and Garcia-Pont, 1991). The linkages create a synergy effect that enhances or reshapes the competitiveness of firms bonded by such alliances. There are various forms of strategic linkages, and FDI is one of them. The purpose of strategic linkages through FDI is to tap into strategic resources in a foreign market, such as market intelligence, technological know-how, management expertise, or simply reputation for being established in a prestigious market. Strategic linkages as such enable investors to gain economies of scale and scope, to improve the efficiency of operations, to reduce the vulnerability to market fluctuations, and most of all, to pave the way for further growth in the future.

The network approach takes an even broader perspective on linkages. All firms in a market are considered to be embedded in one or more networks via linkages to their designers, suppliers, subcontractors, customers, and the like. Markets can be partitioned into numerous interwoven networks which are mutually nonexclusive and constantly evolve over time. Coordination of market activities is not brought about by a central plan or an organizational hierarchy, nor does it take place only through the price mechanism. Instead, coordination takes place through interactions between firms in the networks, where price is only one of several decision factors (Lindblom, 1977).

Under the purview of the network approach, FDI is nothing but a linkage to a foreign network. The sole purpose of linking to a foreign network is to access the resources therein. These resources may include market opportunities, natural resources, labor, capital, technology, and other strategic assets that are essential for the investor's long-term survival. Linkage to a foreign network, although usually initiated by an individual firm, may entail actions by other members in the network. A firm's position in the national network prescribes its process of internationalization because that position determines its ability to mobilize the resources within the network for such an endeavor (Johanson and Mattson, 1987). For example, a dominant firm in the Japanese *keiretsu* can orchestrate concerted actions among *keiretsu* members to penetrate jointly a foreign market, or to establish a production system in a foreign location similar to that at home (Ozawa, 1993). In contrast, small firms in Taiwan's loosely structured small-firm networks usually take independent actions when making FDI. They, nonetheless, rely on resources within the national networks to support their cross-border operations, at least initially (Chen *et al.*, 1995). Therefore, resources within the network and the structure of the network, in addition to firm-specific internal resources, chart the course of a firm's internationalization.

Networking is an adaptation process because interdependent production, logistics, development, and administrative activities and resources need to be modified and coordinated to bring about a better match between the firms in the network (Hallen, Johanson and Seyed-Mohamed, 1991). Hence, how difficult it is to establish linkages with foreign networks also depends on the nature of foreign networks. If foreign networks are structurally similar to domestic ones, creating linkages is relatively easy because there is little need for adaptation on either side. This is equivalent to saying that network similarity reduces transaction costs and cuts short the learning process envisaged by the cumulative approach to FDI (see, e.g., Johanson and Wiedersheim-Paul, 1975; Johanson and Vahne, 1977). In recent years, increased globalization of networks around the world has reduced heterogeneity among national networks, making the strategy of entering a foreign market biased towards more direct and more rapid modes than those implied by the cumulative approach.

Network resources are particularly useful in entering a "primitive" market in which institutions that facilitate internationalization are still lacking. As argued by Johanson and Mattson (1987), in a primitive market a firm with no experience of foreign operation has little chance of establishing a position in a local network. Dunning and Narula (1996) argued in their investment development path framework that in a primitive market only firms possessing some dominating ownership-specific advantages can establish themselves to exploit the resources endowed in the local economies. Nevertheless, many first-time investors from Taiwan have established themselves in Southeast Asia and China because the local Chinese business community serves as an interface assisting the link-up.

Network resources are less important for entering a mature market like the United States in which institutions facilitating internationalization function well. However, since this type of market is well-structured and highly spe-

cialized, only firms with powerful and abundant internal resources are qualified to enter. Linkages to this type of market are more "strategic" than those to primitive markets in the sense that such linkages enhance the strategic capabilities of investors. In turn, these capabilities reshape their course of future actions and broaden their scope of market opportunities, rather than merely maintaining their market positions as linkages to primitive markets do. In other words, the functions of a network linkage are location specific.

Getting established in local networks requires adaptation. In a primitive market, adaptation occurs mainly on the production side, as investors attempt to integrate themselves into local supplier networks with the aim of reducing production costs. In a mature market, adaptation occurs mainly on the demand side, as investors' major motive is to build closer bonds with local customers. Small firms are generally more adaptive than large firms, which may have difficulty finding a niche in highly internationalized networks (Johanson and Mattson, 1987). Large firms, however, may find it easier to penetrate a large and primitive market because their products can be replicated in the local market and their sheer size reduces the need for adaptation. For a large investor who commands sizable forward and backward linkages in the production process, local agents and suppliers may modify themselves to accommodate the needs of the foreign investor in the process of forming a network of their own. Therefore, the functions of a network linkage may also depend on the size of the investor.

According to the conventional theory of FDI, an investor chooses a location in which the local resources enable the investor to upgrade, or to make best use of its internal capabilities. In terms of the network approach, while complementarity between local resources and internal capabilities remains important, local factors that minimize transaction costs or coordination costs of markets, or those which are specific to the functioning of network activities also matter in the FDI location decision (Dunning, 1995). Recent studies have shown that transaction- and coordination-cost variables, such as inter-personal relations, information asymmetries, language and culture, and the like, are more important than production-related variables in determining FDI locations (Dunning, 1997). An integrated view of the conventional and network approaches would suggest that firm-specific assets, availability of local resources, and the possibility for network linkages may interact with one another to produce the final decision on FDI location.

Empirical studies of the FDI location decision have uncovered the importance of agglomeration effects emanating from clusters of inter-firm linkages (Wheeler and Mody, 1992; Harrison, 1994; Audretsch and Feldman, 1994). One possible explanation of the agglomeration effect is that information flow within local networks and institutional thickness (Amin and Thrift, 1994) underlying these networks make it easy for a potential investor to establish itself in the local networks. In other words, agglomeration increases the possibility of mapping potential investors with foreign investors and, at the same time, reduces the transaction costs of such a mapping. Casual observations suggest that agglomeration is indeed at work in Taiwan's FDI in Southeast Asia and China. For example, investments by Taiwan's computer industry concen-

trate in Penang, Malaysia, investments by the textile industry cluster in Bangdung, Indonesia (Chen *at al.*, 1995), and investments by the footwear industry locate mostly in China's Canton Province (Chiu and Chung, 1993).

NETWORKING AND TAIWANESE FDI

Network approach has important implications for Taiwan's small and medium-sized firms, which are known to be weak organizations linked by strong networks (Redding, 1996). Networking among Taiwanese firms encompasses non-contractual transactions based on inter-personal links and trust which goes beyond pure business relationships. The unique nature of Taiwanese networks shapes the internationalization process of Taiwanese firms.

Small and medium-sized firms play a major role in Taiwan's outward FDI. How they overcome the organizational weakness that runs contrary to the conventional view of FDI is a puzzling question. The answer seems to lie within the network strength of Taiwanese firms. Network strength may be exploited to obtain logistical support, market information, technological assistance, etc. to support overseas operations. Moreover, national network relationships may be stretched to build linkages with foreign networks, with unique network ties built upon cultural and ethnic bonds, in addition to customer-supplier relationships commonly observed among Western multinational firms. Cultural and ethnic bonds are particularly effective in penetrating primitive markets in which market institutions for cross-border operations are yet to be established.

As FDI entails matching firm-specific assets with local resources to create maximum economic value, networks facilitate such a match. A firm which is short in firm-specific assets, but has ample network resources, may still succeed in FDI because network strength helps it overcome entry barriers to foreign markets and enables it to tap into local complementary resources. This may explain why some seemingly weak Taiwanese firms succeed in making overseas investments. Network strength, however, is exploitable only when certain social, cultural, and political institutions exist that keep transaction and coordination costs to a minimum when operating across national networks. Therefore, network linkages are location specific.

The importance of network linkages to the internationalization of some more successful developing countries, including Taiwan, is well documented. Gilroy (1993, chap. 5), for example, attributed the success of East Asian NICs to inter-firm linkages that indigenous East Asian firms have built with their counterparts in advanced countries. These linkages provide technology, entrepreneurial and managerial know-how, and market access to aid an export-oriented development strategy.

Small firms in particular may draw on network relationships to accelerate the internationalization process. Network relationships are two-edge swords, however. They facilitate international growth of small firms, but they may also inhibit the international market development of these firms by limiting their choice of foreign market and entry mode (Bell, 1995; Coviello and Munro, 1997).

Taiwan's footwear industry can best illustrate how international network linkages facilitate and condition the FDI

decision. Taiwan's footwear industry is export-oriented, and the United State has been the major export market. The U.S. buyers and Taiwanese footwear manufacturers had developed a collaborative relationship for 10 to 20 years before wage increases and appreciation of the Taiwanese currency in the mid-1980s rendered Taiwan's industry uncompetitive in footwear manufacturing. The U.S. buyers were reluctant to switch suppliers in the face of rising costs in Taiwan because the collaborative relationship had created a valuable asset of mutual obligations, trust, and understanding that reduced business uncertainties (Egan and Mody, 1992). Instead of abandoning these relationships, the U.S. buyers encouraged Taiwanese suppliers to relocate to low-wage countries in Southeast Asia and China. Some even participated in Taiwanese overseas investments as joint-venture partners. More importantly, the U.S. buyers assured Taiwanese investors of export orders to forthcoming overseas subsidiaries, thus reducing the FDI risks for them.

Hsing (1996a) provided a detailed account of the working of Taiwanese production networks, which consist of manufacturers, trading firms, material suppliers, machinery and equipment providers, subcontractors, etc. in the fashion shoe industry. Hsing considered the role of trading firms to be pivotal in the functioning of Taiwanese networks because they perform the functions of overseeing the production process and schedules, provide technical support, undertake quality control and ensure punctual delivery. Our study shows that after Taiwanese footwear manufacturers relocated to Southeast Asia and China, these trading firms continued to serve as intermediates between the U.S. buyers and Taiwanese manufactures.[1] Trading firms either relocated along with their major manufacturer clients to foreign countries, or stationed expatriate inspectors in the overseas factories of their major clients. Thus, overseas investment by Taiwan's footwear manufacturers was accompanied by a relocation of these network relationships.

Not all network relationships can be relocated, however. Sourcing raw materials from Taiwan's networks may be hindered by transport costs and artificial barriers to trade. Relocating Taiwanese suppliers to overseas locations can be too costly to be justified by limited demand. The location that presents the lowest transaction costs in preserving the original network relationship, or is the most conducive to the replication of a network is the most attractive to investors who depend on networking for competitiveness.

Hsing (1996b) documented how local Chinese government officials interpreted laws and regulations flexibly to accommodate the needs of Taiwanese investors. Flexible interpretations accelerated the application process of investment projects and circumvented customs inspection procedures, which in turn enabled Taiwanese investors to retain their flexibility and nimbleness in serving their export markets from China. Flexible interpretations were made possible through effective communications between Taiwanese investors and local Chinese officials who shared common culture and language.

The nature of national networks may also shape the globalization strategies of indigenous firms, and consequently affect their location choices. Li (1994), for example, reported that differences in

national resource pool and market structure led Taiwanese and Korean computer firms to pursue different globalization strategies. In Korea, the computer industry was dominated by large conglomerates which enjoyed a larger and more protected domestic market than their Taiwanese counterpart, whereas in Taiwan the computer industry was ruled by a large network of small and medium-sized firms which were exposed to intense international competition. As a reflection of network differences, Taiwanese firms adopted a core strategy of targeting small niche segments of the market, pushing exports at medium-range prices, and upgrading products to high value-added items. In comparison, the Korean firms were committed to substantial initial investments, manufacturing in large volumes, and pushing exports at ultra-low prices. Distinctive strategies may drive FDI to different locations.

DATA AND VARIABLE CONSTRUCTION

Taiwanese firms have become a major force in FDI from developing countries since 1986 (Lall, 1991). Unlike Western multinational firms, which are typically large in scale and with plentiful resources, Taiwanese FDI was spearheaded by relatively small firms. Even the larger Taiwanese firms were small by international standards. Major destinations of Taiwanese FDI were the United States, China and Southeast Asia. It has been shown elsewhere (Chen and Chen, 1998) that investments in the United States were made by firms equipped with the most resourceful and advanced firm-specific assets, investments in Southeast Asia came second in terms of investors' resourcefulness, and investments in China were made by firms with the fewest resources.

The purpose of this paper is to see how network linkages interact with firm-specific assets and location-specific factors to determine the locational choice in FDI. Explanatory variables for such a choice are grouped into three categories: Network linkages, firm-specific assets, and location-specific factors. We separate network linkages into two sub-categories: One is internal linkages within the hierarchy of the firm, and the other is external linkages to resources in a foreign network. Internal linkages are further divided into linkages that create global synergy effects and linkages that serves strategic purposes, such as a move to preempt a rival's opportunity of entry (Kim and Hwang, 1992). External linkages are further delineated into relational linkages to foreign suppliers, customers, suppliers' suppliers, customers' customers, or simply friends and countrymen (Hamilton, 1996), and strategic linkages to complementary capabilities (Porter and Fuller, 1986). Conventional literature on external linkages emphasizes the strategic aspect of linkages (see, e.g., Arora and Gambardella, 1990), and downplays the role of relational linkages. But relational linkages could be very important for Taiwanese firms because of their family-centered business culture (Hamilton, 1996) and the presence of an overseas Chinese diaspora.

All explanatory variables for FDI, including network-related variables, are structured into two layers: Indicators and constructs. Several indicators are combined to form a construct to represent a certain dimension of the variables. For example, two indicators are combined to measure the construct of market potential. They are the growth rate of the industry to which the investor belongs and the potential market size of this industry. Market poten-

tial, together with four other constructs, namely, production costs, location familiarity, country risk, and contractual risk, is used to represent location-specific factors.

Each construct is measured by a composite index of its underlying indicators derived from a principal components analysis. The indicators and constructs are listed in Table 1, together with Cornbach's alpha statistics, which indicate how well the indicators jointly represent the construct. Note that some indicators stand alone. In this case, they are represented by their original value without any transformation. The representation can be considered reliable if Cornbach's alpha is greater than 0.6 (Nunnally, 1978). We can see from Table 1 that all representations of constructs are statistically reliable.

Our raw data were taken from a survey conducted by the authors in 1994 on 554 Taiwanese firms that made direct investments in the United States, China, and Southeast Asia. Since Southeast Asia is diverse in economic development and resource endowment, we only included in our study Thailand and Malaysia, two large host countries for Taiwanese investments in the region. Both Thailand and Malaysia have a wage rate lower than that in the United States, but higher than China's, and have a sizable population of ethnic Chinese. The survey population was drawn from a government file containing overseas investment projects approved by the government between 1986 and 1993. Each respondent to the survey was identified a single FDI location. For those making multiple investments, FDI location was identified as the one where the largest investment project in terms of capital investment was established. We understand that some Taiwanese firms made overseas investments without the government's knowledge, but these were mainly small and medium-sized firms. Although our sample is biased toward relatively large firms, a sizable number of small and medium-sized firms is also covered in the survey. We obtained 146 valid questionnaires from the survey, which constitute the basis of the following analysis. Out of the 146 sampled firms, 70 had invested in China, 53 in Southeast Asia, and 23 in the United States. Altogether, 86 are small and medium-sized enterprises (according to the Taiwan's official definition, firms with less than 300 employees are small and medium-sized enterprises).

We first employed a multivariate analysis of variance (MANOVA) to detect the overall differences among firms investing in different locations in terms of their investment profiles. We then conducted a multiple discriminant analysis (MDA) to see how well firm-specific assets, locational factors, and network linkages fared in discriminating between investors that made different location choices. In particular, the influence of network linkages in location choice is singled out and tested statistically.

EMPIRICAL RESULTS

We first conducted a multivariate analysis of variance (MANOVA) on investment profiles. Investment profiles consist of three dimensions: Firm-specific assets, locational factors, and network linkages. The MANOVA results are shown in Table 2. The average value of each indicator and the average loading score for each construct that constitutes the investment profiles are listed separately for three groups of investors. It can be seen that the overall

TABLE 1
THE CONSTRUCTS AND THEIR INDICATORS

Constructs	Cornbach's alpha
Location familiarity	
Company's prior experience with the host country (not at all / great)	0.76039
Perceived difference between the home and host country with respect to: (great / not at all)	
Culture	
Political system and economic conditions	
Communication	
Market potential	
For the industry involved in the host market:	0.9427
Industry's growth rate (low / high)	
Potential market size in this industry (low / high)	
Country risk	
Instability of host country's political system (high / low)	0.86486
Likelihood of the host government taking actions to annihilate or limit a foreign company's ownership stake in a joint venture (high / low)	
Risk of currency inconvertibility in the host country (high / low)	
Inconsistency of the host country's economic policy (high / low)	
Contractual risk	
Cost of making and enforcing contracts in the host country (high / low)	0.855396
Instability of supplies of raw materials and components in the host country, including terms of delivery price and quality (high / low)	
Global synergies	
The level of possible sharing between the foreign business unit and the organization's other business units with respect to: (low / high)	0.923487
Manufacturing know-how	
Marketing know-how	
Management expertise	
R&D resources	
R&D personnel	
Distribution system	
Marketing personnel	
Production personnel	
Global strategic motivations	
Strategic motivation for entering the host market:	0.74175
To establish a strategic outpost for future market expansion (weak / strong)	
To develop a global sourcing site (weak / strong)	
Strategic linkages	
The reason for Taiwan's outward FDI is to acquire or develop new technologies (yes /no)	0.877996
The reason for Taiwan's outward FDI is to utilize local international experiences and distribution networks (yes / no)	
Indicators	
R&D intensity: The average ratio of R&D expenditure to the value of sales in the last three years.	
Sales growth: The average sales growth rate in the last three years.	
Production cost: The cost of production in the host country (high / low).	
Relational networks: Whether the sources of FDI initiatives are urged by local sales agents, local supplier, local users, the other local firms, core firm, overseas Chinese, host country firms or group actions by firms in the same industry in Taiwan (yes / no).	
SME: Small and medium-sized enterprise, if number of employees < 300 then SME is equal to 1; if number of employees ≥ 300 then SME is equal to 0.	

TABLE 2
MANOVA RESULTS FOR CHOICE OF LOCATION

Segmentation Variables	Variable Means[a]			Univariate F Tests (significance)
	China	Southeast Asia	United States	
Firm-specific assets				
R&D intensity*	2.5057	3.0417	3.3158	0.0503
Sales growth*	14.1838	15.1017	29.7557	0.0300
Locational factors				
Production cost*	3.3217	3.1509	2.2601	0.0004
Location familiarity	-0.0803	0.0642	0.0804	0.6863
Market potential **	0.175	-0.2835	0.1633	0.0342
Country risk ***	-0.6132	0.4669	0.7978	0.0001
Contractual risk ***	-0.5137	0.3777	0.6329	0.0001
Network linkages				
Global synergies	0.0254	0.0538	-0.0926	0.8379
Global strategic motivations	-0.0323	-0.0606	0.2645	0.3852
Relational networks *	0.3857	0.5526	0.2174	0.0170
Strategic asset linkages *	-0.3347	-0.2485	1.5915	0.0001
SME ***	0.7857	0.3962	0.4348	0.009

Multivariate Tests of Significance

Test Name	Value	Approximate F Statistic	Significance of F Statistic
Wilks' lambda	0.2310	13.1	0.0001
Pillai's trace	0.9661	11.4	0.0001
Hotelling-Lawley's trace	2.4758	14.9	0.0001

Notes: a. Standardized means for constructs composed by indicators; simple means for single indicators.

* All comparisons significant by ANOVA at 5% level, except Southeast Asia compared with China.

** All comparisons significant by ANOVA at 5% level, except United States compared with China.

*** All comparisons significant by ANOVA at 5% level, except United States compared with Southeast Asia.

differences among the three groups of investors are statistically significant, in view of either Wilk's lambda (0.2310), Pillai's trace (0.9661) or Hotelling-Lawley's trace (2.4758).

Judging from the loading score of each individual construct, differences in investment profiles are discernible in all dimensions. For instance, in terms of firm-specific assets, firms investing in the United States are shown to have the highest R&D intensity, and experienced the highest rate of sales growth in the three years prior to the survey. In contrast, firms investing in China are shown to have the lowest R&D intensity and experienced the lowest rate of sales growth. Firms investing in Southeast Asia lie in between China and the United States. A univariate analysis of variance (ANOVA) confirms that firms investing in the United States are superior to those investing in China and Southeast Asia, respectively, in terms of each construct of firm-specific assets, but the difference between those in China and Southeast Asia is insignificant. MONOVA compares the three groups of firms jointly, whereas ANOVA makes pair-wise comparisons.

Next, in the area of locational factors, firms investing in China consider China to have the lowest production costs (shown by the highest loading score) among the three sites, followed by Southeast Asia and the United States; but the difference between China and Southeast Asia is statistically insignificant. Nor is there a significant difference between the three groups of investors in terms of their perception of location familiarity. Location familiarity measures the investor's prior market experience in the prospective host country (in the form of exporting or licensing) and the investor's perceived distance to the host country in terms of affinities and similarities of culture, political system, economic conditions, and the ability to communicate. It is well documented in the literature that cultural and geographical distances discourage FDI (e.g., Grosse and Trevino, 1996). Although China is psychologically closer to Taiwanese investors than the other two locations in terms of culture and communications, this proximity is offset by distance in political and economic systems.

Despite close cultural ties, China is perceived to present the highest contractual risks to Taiwanese investors among the three competing locations. This suggests that compatibility of political and economic systems is more compelling than cultural bonds in the determination of contractual risks, which encompass risks pertinent to contract repudiation, contract enforcement, and dispute settlement. The United States is shown to have the lowest contractual risks among the three locations, followed by Southeast Asia. Country risks, which measure the risks of political instability, likelihood of expropriation, currency inconvertibility, and policy inconsistency, exhibit a pattern virtually identical to that of contractual risks. Market potential, however, is shown to be relatively high in China and the United States, but relatively low in Southeast Asia.

Finally, in terms of network linkages, significant differences appear in the areas of relational networks and strategic linkages, but little difference is discernible in the areas of global synergies and global strategic motivations. Although internal linkages are said to be an important motivation for internationalization of Western multinationals (Kim and Hwang, 1992), they are less

relevant for Taiwanese firms because the latter lack the capabilities to exploit the potential benefits of intra-firm networks. For example, global synergy effects based on the sharing of knowledge, resources, and facilities are shown to be the strongest in Southeast Asia, followed by China and the United States. This may be due to the geographical proximity of Southeast Asia and China to Taiwan. It has been shown that the advantage of geographic proximity depends upon the extent to which the acquisition and transfer of knowledge, particularly tacit knowledge, is involved (Audretsch and Stephan, 1996). It is advantageous to locate a production site to the knowledge source if frequent transfer of such knowledge is required. The differences among three locations are not statistically significant, however. This suggests that the ease of transferring know-how may not be an important consideration for Taiwanese FDI.

In contrast, external networks are more important for Taiwanese firms, precisely because Taiwanese firms are weak in organizational strength and lack the capacity to build internal linkages. The construction of relational networks is shown to be the most robust in Southeast Asia, followed by China and the United States, although the difference between Southeast Asia and China is not statistically significant. The construction of strategic asset linkages is the highest in the United States, followed by Southeast Asia and China. Again, the difference between China and Southeast Asia is minor. In Southeast Asia, customers, suppliers, local agents, counterparts in domestic networks, and even local Chinese intermediators serve as connectors for linking Taiwanese firms to local networks. These connectors are somewhat less important in China when compared to Southeast Asia, and much less important in the United States. On the contrary, strategic-asset linkages that enable Taiwanese firms to access local technology networks and internationalization resources are shown to be the most important for investment in the United States, followed by Southeast Asia, and are the least important in China.

To see how network linkages vary with the size of the firm, we divided our sample into a small-firm group and a large-firm group. The small-firm group consists of firms with less than 300 employees, and the large-firm group captures the rest. Since only the constructs of relational networks and strategic-asset linkages show significant differences among the three locations, the breakdown based on firm size is performed only for these two constructs. The results are shown in Tables 3.1 and 3.2.

It can be seen from Table 3.1 that among the three locations only in Southeast Asia does firm size affect external linkages. For those investing in Southeast Asia, small firms are shown to utilize relational networks more often than large firms. Small firms utilize local connections more often than large firms because they are weak in organizational strength, and are therefore more in need of local connections to get established in local networks. Large firms can rely upon their own reputation, market position, technological superiority and other firm-specific capabilities to hook up with local networks. Small firms are also more inclined to use the strength of their counterparts in national networks to overcome entry barriers to foreign markets. They take advantage of infor-

TABLE 3.1
MEAN LOADING SCORES FOR RELATIONAL NETWORKS BY FIRM SIZE

Firm Size	Location			Significance of difference between locations
	China	Southeast Asia	United States	
Small firms (employees<300)	0.4182	0.7143	0.2000	0.0129
Large firms (employees≥300)	0.2667	0.4465	0.2308	0.2833
Total	0.3857	0.5526	0.2174	0.0170
Significance of difference between small and large firms (P-value)	0.292	0.054	0.867	

TABLE 3.2
MEAN LOADING SCORES FOR STRATEGIC LINKAGES BY FIRM SIZE

Firm Size	Location			Significance of difference between locations
	China	Southeast Asia	United States	
Small firms (employees<300)	-0.3959	-0.3053	1.5578	0.0001
Large firms (employees≥300)	-0.1103	-0.2113	1.6352	0.0001
Total	-0.3347	-0.2485	1.5915	0.0001
Significance of difference between small and large firms (P-value)	0.151	0.5303	0.9047	

mation flows in the networks and local presence of larger counterparts to aid their entry efforts. The size effect is insignificant in China and the United States, however. This is probably because networking facilities are superseded by other forces in these two locations, such as government intervention or market institutions, the functioning of which is independent of firm size.

In fact, when the sample is stratified into two size groups to make comparisons across locations, overall differences in relational networks among the three locations are statistically significant for the small-firm group, but not for the large-firm group. In other words, it is mainly the small and medium-sized firms that find local connections essential to their establishment in the local networks. Large firms utilize other resources for network connections, and their relational webs are also likely to be global in nature and less location-specific. Local connections are somewhat less important in China than in Southeast

Asia, probably because active interventions by the Chinese government in the form of screening investment projects and awarding incentives render some functions normally performed by private networks obsolete. Cooperation in business relationships is primarily an informal process of pooling resources and coordinating actions between two or more firms (Holm, Eriksson and Johanson, 1996). When government bureaucracy dictates business activities, these informal networks lose some of their power. Hsing (1996b) shows that mutual trust between Taiwanese investors in China and local Chinese government officials is crucial for the success of Taiwanese subsidiaries in China. Government-business relations are not included in our construct of relational networks, however.[2] Meanwhile, relational networks are not important in the United States, because it is a mature and internationalized market in which transaction costs are much lower than in Southeast Asia and China.

Table 3.2 shows that large and small firms do not differ in their choice of locations for strategic asset-seeking FDI. Strategic linkages as a motivation for FDI are most vivid in the United States, followed by Southeast Asia and China. This conforms to the degree of industrialization. As the most industrialized country, the United States offers the most created assets for linkages, which attract small as well as large firms. Large firms are more capable than small firms in making strategic linkages. Our sample indicates that 13 out of 60 large firms chose to invest in the United States, while only 10 out of 86 small firms chose to do the same. The extent to which strategic linkages motivate FDI in the United States does not differ according to firm size, however. Taiwanese firms are not alone in attempting to exploit research capabilities and managerial resources in the United States market; Japanese firms are also found to engage in technology sourcing in the United States and European markets (Kogut and Chang, 1991; Neven and Siotis, 1996).

Network linkage is not only location specific, but also industry specific. In our sample of 146 firms, 48 firms belong to the electronics and electrical products industry (electronics industry for short); the rest belong to various diverse industries. The majority of firms in the electronics industry produce computer-related products, which can be considered to have a relatively high technology content. As reported by Chang and Grub (1992), Taiwan's computer firms tend to focus on niche products and concentrate on the regional market in their internationalization efforts. We stratify the sample into electronics and non-electronics industries to see the interplay of location and industry in external network linkages. The results are presented in Tables 3.3 and 3.4.

It can be seen from Table 3.3 that within the electronics industry there is no significant difference among the three locations in terms of relational networks. Only within the non-electronics industry does the difference in relational networks become significant. This implies that electronics firms are more likely to pursue a "deep-niche strategy" as described by Gomes-Casseres (1997) and Kohn (1997), and relational networks are inconsequential to their location choice. The industry-specific nature of network linkages is manifested mostly vividly in Southeast Asia, where the loading score of relational networks is shown to be significantly higher in the non-electronics

TABLE 3.3
MEAN LOADING SCORES FOR RELATIONAL NETWORKS BY INDUSTRY

Firm Size	Location			Significance of difference between locations
	China	Southeast Asia	United States	
Non-electronics	0.3889	0.7663	0.2727	0.0005
Electronics	0.3750	0.2000	0.1667	0.3756
Total	0.3857	0.5526	0.2174	0.0170
Significance of difference between electronics and non-electronics (P-value)	0.9216	0.0001	0.7246	

TABLE 3.4
MEAN LOADING SCORES FOR STRATEGIC LINKAGES BY INDUSTRY

Firm Size	Location			Significance of difference between locations
	China	Southeast Asia	United States	
Non-electronics	-0.3379	-0.2653	0.6656	0.0001
Electronics	-0.3242	-0.2209	2.4401	0.0001
Total	-0.3347	-0.2485	1.5915	0.0001
Significance of difference between electronics and non-electronics (P-value)	0.9118	0.7695	0.002	

industry than in the electronics industry. In other words, it is mainly the relatively mature industries outside the electronics sector that take advantage of relational linkages to make FDI in Southeast Asia.

However, the locational differences in terms of strategic linkages are shown to be statistically significant for both electronics and non-electronics industries (Table 3.4). It is the United States that provides such linkages. The linkages for the electronics industry, nonetheless, dominate the non-electronics industry by a significant margin. This implies that it is the relatively high-technology industries that are earnestly seeking linkages to strategic resources in the most advanced market of the United States.

Next, we conducted a multiple discriminant analysis (MDA) to assess how well the set of constructs and indicators discriminate among the three location choices. MDA yields two canonical discriminant functions which are shown in Table 4. Both discriminant functions are statistically significant at the 1% level, but the first function explains more variance than the second. If we

take Pedhazur's (1982) suggestion to separate the major discriminant variables from the minor ones by drawing a demarcation line along the structural coefficient at 0.30, then production costs, country risks, contractual risks, strategic linkages, market potential, relational networks and firm size are major discriminatory factors.

Using the two discriminant functions we can calculate the functional value for each firm and arrive at the group means. The group means of the functional values for China, Southeast Asia and the United States are listed in Table 5. It can be seen that Discriminant Function 1 yields the highest value for firms investing in the United States, second highest for those investing in Southeast Asia, and the lowest (and negative) for those investing in China. Discriminant Function 2 yields the highest value for the U.S. group, the second highest value for the China group, and the lowest (and negative) for the Southeast Asia group. Judging from the combination of constructs and indicators that form the discriminant functions, Function 1 seems to largely reflect the importance of strategic asset linkages and production costs while Function 2 seems to largely reflect the importance of market potential and relational networks. In essence, the three groups of firms can be discriminated by the nature of network linkages, in addition to production costs and market potential that reflect labor-seeking and market-seeking FDI, respectively (Kojima, 1973). Strategic linkages are an important motive for FDI in the United States, while relational linkages are an important impetus for FDI in Southeast Asia. China lies between the two.

The stratification based on two dis-

TABLE 4
DISCRIMINANT ANALYSIS FOR LOCATION CHOICE

Variables	Structure Coefficients	
	Discriminant Function 1	Discriminant Function 2
R&D intensity	0.2394	-0.1041
Sales growth	0.2406	0.1738
Production cost	-0.3725	-0.1965
Location familiarity	0.0787	-0.0601
Market potential	-0.0605	0.3598
Country risk	0.6903	-0.3980
Contractual risk	0.5515	-0.3242
Global synergies	-0.0227	-0.0795
Global strategic motivations	0.1142	0.1188
Relational networks	-0.0837	-0.3879
Strategic linkages	0.7488	0.5796
SME	0.3809	0.3977
Eigenvalue	1.8639	0.5101
% of variance explained	78.51%	21.49%
Canonical correlation	0.8067	0.5812
Significance (P value)	0.0001	0.0001

TABLE 5
GROUP MEANS OF DISCRIMINANT FUNCTIONS

Group	Discriminant Function 1	Discriminant Function 2
China	-1.1797	0.4019
Southeast Asia	0.4134	-0.9110
United States	2.6380	0.8760

criminant functions correctly classifies 76.7% (112 out 146) of the observations into respective locations. We also conducted a pair-wise breakdown analysis to examine the power of the discriminant functions in differentiating the three location choices pair by pair. Mahalanobis' D-square statistics were employed to measure the "distance" between each pair of locations on the "discrimination map" (see Stevens, 1972 for an explanation). The larger the D-square statistic, the more heterogeneous the pair of groups. It is shown that heterogeneity between each pair of groups is significant at the 1% level, as Mahalanobis' D-square statistic is 4.2617 for the China-Southeast Asia comparison, 14.7996 for the China-United States comparison, and 8.1422 for the U.S.-Southeast Asia comparison. This implies that the combinations of firm-specific assets, locational characteristics, and network linkages provide sufficient variances to discriminate Taiwanese firms into three distinctive groups that choose to invest in China, Southeast Asia and the United States. In particular, external network linkages are shown to be important constituent elements of the discriminant functions, along with labor-seeking and market-seeking motives.

To single out the contribution of network linkages to locational choice independent of firm-specific and production-related variables, we compared the discriminant power of the full model with that of a restricted model in which four network linkage variables (global synergies, global strategic motivations, relational networks and strategic linkages) were deleted. Q-statistics (see, Rao, 1952 and Dillon and Goldstein, 1984 for explanations) were employed to test the significance of network linkage variables as a group. The resulting Q-statistics are shown in Table 6. It can be seen that the case of China versus Southeast Asia produces a Q-statistic of 1.468, which is insignificant at the 10% level, suggesting that the overall network linkages are statistically inseparable for investments in China and Southeast Asia. The cases of Southeast Asia versus the United States, and

TABLE 6
CONTRIBUTION OF NETWORK VARIABLES TO DISCRIMINANT POWER

Group compared	Q-statistic	Degree of freedom	Significance Level
China vs. Southeast Asia	1.468	(4,110)	P>0.1
China vs. United States	9.679	(4,80)	P<0.01
Southeast Asia vs. United States	14.977	(4,63)	P<0.01

China versus the United States yield Q-statistics which are both significant at the 1% level, suggesting that the nature of network linkages are indeed distinctive for the United States on the one hand, and China and Southeast Asia on the other. In short, strategic linkages motivate investments in the United States, while relational linkages facilitate investments in China and Southeast Asia.

CONCLUSIONS

This paper argued that network linkages drive and facilitate FDI. They drive FDI because investors can gain access to strategic assets in a foreign country via network connections. They facilitate FDI because, via network connections, investors can overcome entry barriers to establish themselves in a foreign market, and can reduce transaction costs when running cross-country operations. Network linkages may complement or supplant the weakness of firm-specific capabilities and enable small and seemingly weak firms to undertake FDI.

Studying Taiwan's FDI pattern, we found that Taiwanese firms are keen on forming external network linkages, but are indifferent or incapable of forming internal linkages through FDI. This is presumably because Taiwanese firms are weak in organizational capabilities, but strong in networks. We separate external linkages into strategic linkages and relational linkages. Strategic linkages refer to business alliances that enhance the competitiveness of firms in the alliance by pooling complementary or similar firm-specific capabilities. Relational linkages refer to bonds based on personal relations or business transactions that create trust and mutual understandings, which underscore inter-firm cooperation. Strategic linkages motivate FDI, while relational linkages facilitate FDI.

FDI as a conduit for strategic linkages contradicts its conventional interpretation, namely, the exploitation of firm-specific managerial and technological know-how by large and powerful enterprises. Strategic linkages interpret FDI as an attempt to acquire know-how that reinforces the strengths or complements the weaknesses of the investors. Although in general large enterprise are more likely to seek strategic linkages than small firms, small firms with technological expertise or market power in certain niche markets also earnestly seek such linkages. Strategic linkages are more active in high-technology industries than in mature industries.

Relational networks based on business relations, personal links, and ethnic commonality facilitate FDI on the one hand, but also confine the scope of location choice on the other, because these networks tend to be location specific. Relational networks are also shown to be a more influential factor in mature industries than in high-technology industries.

Grouping Taiwan's major overseas investment locations into China, Southeast Asia and the United States, we found that investors in Southeast Asia take advantage of business and personal relations more often than their counterparts in the other locations to build linkages to local networks, while investors in the United States utilize their own capabilities to build strategic linkages to local resources. Small firms are particularly keen on utilizing relational linkages to establish themselves in Southeast Asia and China where the ethnic Chinese population serves as an interface for networking. The availabili-

ty and ease of establishing network linkages are shown to be a significant determinant in the locational choice of FDI independent of firm-specific assets and other locational characteristics of the host country.

NOTES

1. The study is based on interviews of some Taiwanese footwear manufacturers in Southeast Asia conducted in 1994.

2. Government-business relationship is an important aspect of FDI. Most host country governments adopt proactive policies toward FDI. They help foreign investors locate plant sites and local partners, get them connected with local financial institutions and suppliers, and may even allocate workers to foreign ventures. But official assistance programs mainly benefit large enterprises. Small enterprises depend on "informal" assistance from the governments, which is forthcoming only after mutual trust has been developed through personal relationship. Taiwan's government provides information services and financial support to Taiwanese firms to invest abroad. It may even negotiate with host country governments on behalf of Taiwanese investors for better terms of investment. This support is also likely to benefit large enterprises more than small ones. The fact that government support aimed at facilitating FDI is biased toward large enterprises makes non-governmental relationships even more valuable to small enterprises.

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