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# **INTERNATIONAL CLUSTERING AND FOREIGN SUBSIDIARY PERFORMANCE**

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## **INTRODUCTION**

Industry cluster (geographic concentration of firms in the same industry), a traditional economic geography domain (Krugman, 1991), has increasingly drawn attention from both international business (IB) and strategy scholars. However, current studies have overlooked several important questions. How are industry clusters developed over time and how does the development process affect firm performance? How do Multinational Companies (MNCs) enter a foreign country to build a “foreign” cluster of their own and what are the performance implications?

In an attempt to answer these questions, we draw on multiple theoretical lenses to build and test a network-based model of international clustering and foreign subsidiary performance. To incorporate both the social and economic interactions within a cluster, we focus on a particular type of international cluster – foreign peer network (FPN), which refers to a set of social and economic relations (a network) among a group of foreign subsidiaries that are from the same home country and operate same or similar businesses within a common geographic boundary in the host country. This FPN concept is not only consistent with economic geography’s view on regional clusters, but also consistent with Inkpen and Tsang’s (2005) classification of different network types.

The formation of a FPN occurs in parallel to the foreign subsidiaries’ entry into and exit from the foreign market. This development process is driven by multiple institutional, economic and social forces in the international context. The interplay among these forces not only leads a FPN to go through several distinctive development stages, but also creates different social and economic conditions at each stage. As a result, FPN itself becomes an important force that influences the performance of foreign subsidiaries doing business overseas. A foreign subsidiary joins a FPN at different development stages, therefore, the initial FPN condition and its subsequent development will impose a lasting imprinting effect (Boeker, 1989; Zhou & Li, 2008) on the subsidiaries’ ongoing performance. Therefore, we argue that the stage at which a subsidiary entered a FPN can explain partly its performance.

## **FPN DEVELOPMENT DYNAMICS**

We defined an international cluster as a peer network of foreign subsidiaries within a common geographic boundary in the host country. The formation of a FPN is a dynamic process, which can be viewed differently from different theoretical angles. From an ecological view (Hannan & Freeman, 1989), it is a process of developing a population of foreign subsidiaries in a new environment; in economic geography (Krugman, 1991), a

process of geographic clustering or agglomeration; from a social network perspective (Inkpen & Tsang, 2005), a process of building a network by foreign subsidiaries. Each theory emphasizes separately one aspect of the development process, representing three distinctive mechanisms behind the process: legitimation, agglomeration and connection. These three mechanisms join to make a FPN develop through four distinctive stages: Preparation, origination, growth and maturity.

**Preparation (Pre-FPN).** The entry of pioneering subsidiaries into a new foreign market prepares a foundation for a FPN to emerge. At this stage, since pioneers face a new market and do not have peers to benchmark, they can have multiple locations to choose. This may result in several pioneers spreading in different locations. Therefore, among the three mechanisms, legitimation becomes an immediate trigger, while agglomeration or connection is less a concern since there are few subsidiaries and probably they are spreading in a distance.

**Origination.** With the pioneers paving the routes, MNEs will be driven by competitive pressure (Knickerbocker, 1973) and institutional isomorphism (DiMaggio & Powell, 1983; Guillen, 2002) among peers in their home country to enter a foreign market. At this stage, with entry pioneers setting the precedence, entry followers will be more likely to choose one of these first movers to co-locate (Chang & Park, 2005; Chung & Song, 2004; Henisz & Delios, 2001). Over time, when entry followers prefer to co-locate with one pioneer to others, a tipping point in location choices can be reached to break the location balance set by prior entrants. This will likely trigger the agglomeration mechanism which drives firms to increasingly concentrate in one or a few locations (Krugman, 1991).

**Growth.** Once location choices converge, a FPN is ready to grow and takes on a life of its own, independent of the coming and going of specific individual subsidiaries. As we mentioned above, such growth is fueled by a positive feedback loop both in agglomeration (Arthur, 1990; Krugman, 1991) and in institutional legitimation (Hannan & Carroll, 1992; Hannan et al., 1989).

**Maturity.** When an FPN grows to approaching the limit that the local environment allows, its growth rate slows down and it reaches the maturity stage.

These four development stages are the result of the interplay among the three mechanisms – legitimation, agglomeration and connection – behind the FPN formation. Since foreign subsidiaries enter a FPN at different stages, the social, institutional and economic forces in various strength imprint different effects on the member subsidiaries at the time of entry and thereby affect their subsequent performance. In the following section, we develop hypotheses linking FPN development stages with subsidiary performance.

## **HYPOTHESES DEVELOPMENT**

In studying foreign subsidiary performance, survival and profitability have been

commonly examined. This study explores these two aspects of subsidiary performance as well.

## **FPN Development and Subsidiary Performance**

**Survival.** If subsidiaries enter a foreign market at the preparation (pre-FPN) stage, they are first movers or pioneers. At this stage, although the subsidiaries may enjoy first mover advantages to preemptively occupy key resource space due to no or few other peer firms operating in the same domain (1988; Lieberman & Montgomery, 1998), they will not enjoy any of the social or economic benefits (legitimacy, agglomeration economies and social capital) that come with FPN development. As a result, they face a high risk of exit from the local environment.

If subsidiaries enter a foreign market following the pioneers, they have the opportunity to connect to the pioneering firms to learn from them. Already being peers in their home country, they are not total strangers. They also start to build network connections with one another. However, the strength of the social connections remains weak. Therefore, the survival likelihood for the subsidiaries entering a FPN at the origination stage may improve, but remains relatively low.

Once the legitimation trigger is activated for certain locations, in no time, many more foreign subsidiaries will be drawn to the same location. Along with an increased number of peer organizations in the local environment comes the increased legitimacy (Hannan et al., 1989) for all the foreign peer subsidiaries. Through network connections, they can share information, learn from each other, and enhance capabilities in the local environment. Therefore, the survival likelihood for subsidiaries that join their peers at the FPN growth stage will increase.

At the maturity stage, the joint forces of social networking and agglomeration economies will expand the local carrying capacity to sustain further growth, though in a slower pace. On the social front, the FPN becomes better connected with increased connections among FPN members. Social networking within the FPN dilutes the density induced competitive pressure among FPN members and facilitates the agglomeration benefits to be fully reached.

In summary, subsidiaries entering a foreign market at the preparation stage will be least likely to survive. When a FPN originates, grows and matures, the survival chances for the foreign subsidiaries entering at the respective stages will increase over time. Based on the above analyses, we propose the following hypothesis.

*Hypothesis 1. FPN development in a local environment will be positively associated with foreign subsidiary survival; as such, from preparation to maturity, the later subsidiaries enter a FPN the more likely it is to survive in the local environment.*

**Profitability.** If subsidiaries enter a foreign market as pioneers, though facing higher exit risks due to the reasons discussed in previous section, they are well positioned to

pre-empt others from occupying the profitable market and resource space. In other words, they are more likely to generate profits.

If subsidiaries enter a foreign market when the FPN is at the origination or growth stage, though the increased legitimacy, emergent agglomeration economies and enhanced network connections can help the new entrants to survive in the local environment, they will have to settle for a more marginal local market or a more peripheral local resource base. This makes it harder for the subsidiaries to be financially viable (Carroll & Hannan, 1989).

It is understandable that agglomeration economies start to emerge along with FPN growth, but such economic benefits will be hindered by relatively weak social capital in the FPN. As FPNs develop further and reach the maturity stage, foreign subsidiaries start to find a competitive balance. In the meantime, synergies emerge between the FPNs and the surrounding industries in the local environment. Strengthened social capital help release the full potential of the agglomeration economies but meanwhile it has not reached network closure to exclude new entrants yet. Subsidiaries enter the FPN at this stage can free ride on the agglomeration benefits to offset some of the disadvantages of being a late entrant.

Therefore, compared with the subsidiaries entering a foreign market at the origination and growth stages, those entering at the preparation (pre-FPN) or maturity stage may enjoy higher profitability. Based on these analyses, we propose the following:

*Hypothesis 2. Foreign subsidiaries arriving at the origination or growth stage of the FPN development will be less likely to earn profits than those arriving at preparation or mature stages; as such, the FPN development stage at which a foreign subsidiary enters the foreign market will have a U-shaped relationship with subsidiary's profitability.*

## **METHODS AND RESULTS**

The above hypotheses were tested using 26,439 Japanese subsidiaries that existed from 1985 to 2003 in 124 countries, which was almost the whole population of Japanese FDIs during this period. Descriptive analysis confirmed the FPN development stages. The two dependent variables, subsidiary survival and profitability, were measured in line with previous research. (Delios & Beamish, 2001). Independent variable **FPN development stage** was measured based on our descriptive analysis. We also include multiple control variables based on previous research such as parent firm financial, marketing and intellectual resources, local environment resource endowment, growth opportunities and openness to foreign businesses, etc..

Given the nature of the two dependent variables, survival (or inversely the exit risk) and profitability (an ordinal variable), we conducted survival analysis using Cox regression to examine the exit risk of foreign subsidiaries (e.g., Dhanaraj & Beamish, 2004) and ordinal logistic regression to test the profitability models (e.g., Fang, Wade, Delios, & Beamish, 2007).

Hypothesis 1 was partially supported. We detected an S-shaped relationship between the FPN development stage and the subsidiary mortality risk. The hypothesized positive association between FPN development stage and subsidiary survival was confirmed for the three stages.

Hypothesis 2 argued that there would be a U-shaped curvilinear relationship between FPN development and subsidiary profitability. We found strong support to this hypothesis.

## **DISCUSSION AND CONCLUSION**

The testing results revealed several additional insights. It is important to distinguish the institutional logic for agglomeration from economic reasons. Both the organizational and institutional logic works for agglomeration, but in different ways. The institutional logic for agglomeration is largely driven by the risk factors and therefore impacts more on subsidiary survival; while the economic logic is mainly driven by financial returns and therefore impacts more on subsidiary profitability. The results also confirm our argument that in addition to the institutional and economic logic for agglomeration there is one more reason for agglomeration – social capital. Social networking distinguishes FPNs from other traditional geographic clusters by focusing on the networking dynamics among FPN members. It plays an important role in helping to achieve agglomeration economies. A well established FPN fosters trust and therefore facilitates knowledge spillover in a geographic cluster which is an important part of agglomeration economies.

We investigated the development process of a neglected and yet important international cluster, the foreign peer network (FPN), in the international business field and linked its development with foreign subsidiary performance. The study shows that FPNs impact foreign subsidiary performance. We found that, shaped by multiple economic as well as social forces, a FPN developed through four distinctive stages: preparation, origination, growth (take off and stability) and maturity. The performance of foreign subsidiaries, separately measured by survival and profitability, varied depending upon the development stages at which the subsidiary entered the FPN. The FPN development stage had an S-shaped relationship with foreign subsidiary survival, while a U-shaped relationship with subsidiary profitability. Such relationships are determined by the competing social and economic forces associated with the FPN development process. Along the S-shaped survival curve are shifting forces from network cohort effects (legitimation), to crowding, to social networking, and to agglomeration effects. Driving the U-shaped profitability curve are first mover advantages (or late mover disadvantages), competition and agglomeration effects.

These findings make several contributions to current international management and network research. This paper uncovered the development mechanism of an international cluster, and linked it to foreign subsidiary performance. We found that a FPN featured a 4-stage development pattern as a result of multiple social and economic forces in the international business environment. This helps us understand how networks develop across national borders and how such a development process affects

foreign subsidiary performance. The study also contributes to network theory by bridging the gap between social network research and agglomeration studies. An FPN is made up of foreign subsidiaries that are linked by social as well as economic relations and its development is shaped by both social and economic forces. We found that the effects of network development on firm performance are derived from the interplay (not a simple combination) of legitimation, agglomeration and (social) connection.

## REFERENCES

Arthur, W. 1990. Silicon Valley locational clusters: When do increasing returns imply monopoly? Mathematical Science Quarterly, 19: 245-273.

Boeker, W. 1989. Strategic change: The effects of founding and history. Academy of Management Journal, 32(3): 489-515.

Carroll, G. R. & Hannan, M. T. 1989. Density delay in the evolution of organizational population. Administrative Science Quarterly, 34(3): 411-430.

Chang, S.-J. & Park, S. 2005. Types of firms generating network externalities and MNCs' colocation decisions. Strategic Management Journal, 26(7): 595-615.

Chung, W. & Song, J. 2004. Sequential investment, firm motives, and agglomeration of Japanese electronics firms in the United States. Journal of Economics & Management Strategy, 13(3): 539-560.

Delios, A. & Beamish, P. W. 2001. Survival profitability: The roles of experience and intangible assets in foreign subsidiary performance. Academy of Management Journal, 44(5): 1028-1038.

Dhanaraj, C. & Beamish, P. W. 2004. Effect of equity ownership on the survival of international joint ventures. Strategic Management Journal, 25(3): 295-305.

DiMaggio, P. J. & Powell, W. W. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2): 147-160.

Fang, Y., Wade, M., Delios, A., & Beamish, P. W. 2007. International diversification, subsidiary performance, and the mobility of knowledge resources. Strategic Management Journal, 28(10): 1053-1064.

Guillen, M. F. 2002. Structural inertia, imitation, and foreign expansion: South Korean firms and business groups in China, 1987-95. Academy of Management Journal, 45(3): 509-525.

Hannan, M. T. & Freeman, J. 1989. Organizational Ecology. Cambridge, Mass.: Harvard University Press.

Hannan, M. T. & Carroll, G. R. 1992. Dynamics of Organizational Populations: Density, Competition, and Legitimation. New York: Oxford University Press.

Henisz, W. J. & Delios, A. 2001. Uncertainty, Imitation, and Plant Location: Japanese Multinational Corporations, 1990-1996. Administrative Science Quarterly, 46(3): 443-475.

Inkpen, A. C. & Tsang, E. W. K. 2005. Social capital, networks, and knowledge transfer. Academy of Management Review, 30(1): 146-165.

Knickerbocker, F. T. 1973. Oligopolistic Reaction and Multinational Enterprise. Boston, MA: Harvard University Publishing.

Krugman, P. 1991. Increasing Returns and Economic Geography. Journal of Political Economy, 99(3): 483-499.

Lieberman, M. B. & Montgomery, D. B. 1988. First-mover advantages. Strategic Management Journal, 9: 41-58.

Lieberman, M. B. & Montgomery, D. B. 1998. First-mover (dis)advantages: Retrospective and link with the resource-based view. Strategic Management Journal, 19(12): 1111-1125.

Zhou, C. & Li, J. 2008. Product innovation in emerging market-based international joint ventures: An organizational ecology perspective. Journal of International Business Studies, 39(7): 1114-1132.