

## INTERDEPENDENCE AMONG FIRMS IN ALLIANCE CAPITALISM AND ITS IMPLICATIONS FOR FDI: AN EMPIRICAL ANALYSIS

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### **ABSTRACT**

An important operational aspect of international business is the coordination of widely dispersed resources of their networks of relationships with partners. Such interdependencies affect their ability to compete and/or create economic wealth. In order to examine the significance of network relationships in alliance capitalism and foreign direct investment (FDI), a network perspective as governance structure is used to examine the effects of resource interdependencies on relationship value. The article provides insights into alliance capitalism of interfirm relations for understanding implications for relationship value and increasing FDI between firms in industrial clusters of small and medium sized firms. On the basis that flows of local and foreign investment could be from internal or external partners particularly for transnational corporations, research hypotheses are developed and examined in the context of clusters of high technology firms. The results show that resource interdependencies of network relationships support the resource base of a firm and enhance its competencies. There is evidence that the variety of firms and their network resources have a positive effect on alliance capitalism in terms of cost efficiency of asset complementarity and network capabilities. The article considers the implications of focal and network relationships for locational decisions of firms and for public policy and investment promotion.

**Key Words:** FDI, Network relationships, alliance capitalism, relationship value, asset complementarity, transnational corporations, locational decisions, public policy.

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## I. INTRODUCTION

Business firms develop networks of interfirm relationships with various entities including research centres, universities and governmental agencies through local and foreign partners. It is particularly challenging for small and medium sized firms to develop transnational business to increase competitiveness and compete in international markets. Transactional business involves activities across national boundaries, with varying degrees of coordination, integration and local differentiation of strategy and operations, depending on market and business conditions (see e.g., Stonehouse et al., 2004). In an international context, a firm's relationships are part of certain networks of relationships where heterogeneous resources bring firms together and competition is characterized by network capabilities. For example, firms can gain access to desired strategic capabilities by developing relationships with local or foreign firms with complementary capabilities or by pooling their internal resources with firms possessing similar capabilities (Porter and Fuller, 1986; Nohria and Garcia-Point, 1991). The interdependencies that exist between firms are complex particularly for networks of small and medium sized firms as they search for economic wealth creation activities in non-asymmetric relationships beyond their domestic territories.

The resource interdependencies that exist between firms can be examined in terms of alliance capitalism. The main goal of alliance capitalism is concerned with interfirm economic welfare and foreign direct investment (FDI) (Dunning, 1995). FDI has been regarded as a linkage to a foreign network in network relationships (Chen and Chen, 1998). The relationship between firms through resource exchange and coordination enable investors to gain economies of scale and scope. For example, partnering firms may improve the efficiency of operations, to reduce the vulnerability to market fluctuations, and to stimulate further growth in the future (Chen and Chen, 1998), and to gain knowhow and capabilities from partners (Kale and Perlmutter, 2000). Cooperative alliances in FDI are also concerned with protecting existing or acquiring new proprietary or organizational-specific advantages. Much of the work on alliance capitalism and FDI have been advanced by research in arrangements to reduce transaction costs (e.g., Dunning, 1981) and conventional FDI theory that purports the importance of firm size, technological capability and resources in outward investment (e.g., Horst, 1972; Caves, 1974). There are, however, few studies that examine relationship value of alliance capitalism in networks of

business relationships and its implications for FDI. It is important for firms to understand the implications of transactional interdependence and cooperative interdependence for promoting and increasing FDI.

Firms in high-technology industries are typically small- and medium-sized, and more dependent on network relationships for growth and FDI than their counterparts in lowtechnology industries (Chen and Chen, 1998). A number of studies have shown that small- and medium-sized firms played significant roles in outward investment (Buckley, Newbould and Thurwell, 1988; Kohn, 1997). They also represent flows of local and foreign investment from domestic and international investors. In a conceptual synthesis of the various studies of alliances in emerging markets, DeMattos, Sanderson and Ghauri (2002) show that a foreign partner's contribution, in terms of technological resources are one of the primary incentives for alliance formation. Conventional FDI theory explains this phenomenon by attempting to identify firm-specific advantages unique to these seemingly small and weak firms. In the high-tech industry, small- and medium-sized firms are often highly networked in close proximity with each other in a geographical location such as clusters of high-tech firms in Silicon Valley, U.S.A. (e.g., Saxenian, 1991) and Cambridge Science Park, U.K. (e.g., Eng, 2004). These clusters of firms reflect alliance capitalism and they are often examined in terms of potential in generating innovations. However, there is not yet research on linking alliance capitalism to resource implications of interdependencies for relationship value, and for public policy and investment promotion.

The premise of the study is that alliance in networks of business relationships creates resource interdependencies that could affect the overall network of firms. In this sense, a firm's investment in relationships is not independent from its network relationships. This could have positive or negative implications for the value of an alliance. Since small and medium sized firms are constrained by scarce resources more than large multinationals, their networks of relationships are critical for survival in the context of international competition. Strategic decision of resource allocation in network relationships would not only affect a firm's relationship value but also could promote the competitiveness of a firm's network relationships such as attract local and foreign investment. For instance, the competitive advantage of firms in the international scene is strongly conditioned by their membership to a certain geographically

bounded collectivity of interacting firms (Foss, 1999). An understanding of the network effects on relationship value help public policy makers in developing better policies to enhance competitiveness of the network and attract FDI. While conventional studies on FDI and alliance capitalism have examined the roles of multinationals in internationalization and FDI, research on relationship value of alliance capitalism in the context of small and medium sized firms has largely been neglected.

Specifically, the objectives of this study are to examine: (1) resource interdependencies between firms at the focal level (i.e., a dyad relationship) as a first step to gain insights into relationship value of alliance capitalism; (2) the effects of resource interdependencies from network resources in terms of alliance capitalism between firms; and (3) the implications of focal and network relationships for public policy and investment promotion. To accomplish these, the present study examines the interaction of both focal and network relationships. There is no presumption that economic wealth of a region or country is necessarily affected by foreign investment but rather is considered as part of inter-connected activities with local networks of relationships. This perspective is consistent with the concept of resource interdependencies in business relationships and network externalities of industrial districts.

The remaining of this article is structured as follows: the next section will discuss the theoretical background to the research drawing on network approach and resources and alliance capitalism in the context of networks of relationships. In doing so, research hypotheses are developed to test the implications of resource interdependencies at both focal and network level of relationships for understanding the value of alliance between firms. This is followed by description of the research methodology and data analysis. In order to gain insights into networks of relationships, data are collected from clusters of high-tech firms located in Cambridge, U.K. The results are discussed in terms of the value of alliance capitalism between firms and their implications for public policy. The article concludes with a discussion of implications for public policy makers and investment promotion.

## II. THEORY AND RESEARCH HYPOTHESES

Dunning (1997a, p. 73) defines alliance capitalism as the organization of production and transactions involving both cooperation and competition between wealth-creating agents. Alliance capitalism can be regarded as a manifestation of the management of network relationships, which firms pursue by exchanging resources and coordinating activities in the development of complex products or services that confer sustainable competitive advantage (Ring and Van de Ven, 1992; Snow et al., 1992). This network approach to examining network relationships in interfirm coordination can draw insights from diverse perspectives including social exchange research (Blau, 1964; Cook, 1977; Cook and Emerson, 1984), strategy research (Penrose, 1959; Richardson, 1972), organizational theorists (Thompson, 1967; Cyert and March, 1963), and industrial clusters and international competitiveness (Chandler, 1990; Porter, 1990; Piore and Sabel, 1984). A network metaphor can have multiple meanings attached to it and it is necessary to clarify the meaning used in this study.

These network perspectives can be used for analyzing networks and structures of governance (Powell and Smith-Doerr, 1994). Broadly, all network perspectives have in common that cooperation is needed for coordination and structures can be explored for coordination. The present study is concerned with organizing structure for interfirm relationships in clusters of high-tech firms. There is recognition of an interactive view of business relationships (Johanson and Mattsson, 1987), where a focal relationship between two firms is embedded in several or many different relationships in a business network (Anderson et al., 1994). A business network can be defined as a set of two or more connected business relationships, in which each exchange relation is between business firms that are conceptualized as collective firms (Emerson, 1981).

Similarly, relational outcomes of networks in alliance capitalism can be explained to a large extent by the interdependencies in which the focal firm is embedded in the network relationships. For example, the success of FDI in alliance capitalism is contingent on the willingness of its buyers and suppliers to coordinate relevant activities (Holm et al., 1996). FDI is made to preserve, strengthen and enhance the value of some important network relationships (Chen, 2003). The value of the firm is therefore related to complex capabilities defined by its direct focal and network relationships. Network ties in alliance capitalism and FDI are means for firms

to access and mobilise resources therein. The firm in the network relationships would change the relationships in favour of its position to mobilise the resources within the network (Johanson and Mattson, 1987). For example, a network could change due to new activities or new entrants by introducing and mobilizing new activities and resources (Håkansson, 1992). Thus, examining the value of a focal relationship where resource interdependencies are likely to be most intense could provide insights into allocation of strategic assets and/or value of embedded networks of relationships.

### **III. RELATIONSHIP VALUE AND NETWORK INCENTIVES**

In high-tech industries, the emergence of networks is particularly prevalent such as in semiconductors (Saxenian, 1991) and biotechnology (Barley et al., 1992). The continuous pursuit of exchanges and coordination of activities through interaction for the development of capabilities creates networks of alliance capitalism. Resource interdependencies between firms have a direct relevance to a firm's core economic interests. For example, a firm's network is essential for organizational survival in collaborative alliances (Näsi, 1995) or has significant contribution to a firm's value creation (Freeman and Evan, 1990). The resource interdependencies denote dependence and/or interdependence between firms in the provision, exchange, use or development of resources in networks. Resources include valuable tangible and intangible internal and external organizational assets (Wernerfelt, 1988) that may include any valued activity, service or commodity (Cook, 1977).

In networks, the value of a focal relationship is not limited to structural differences between two parties but include both internal and external resources that surround the relationship. A focal relationship not only connects two heterogeneous collections of resources but also forms part of the value or competitive advantage in the network such as regional economies. Although this value hinges on the knowledge of resource use and on how it is spread and coordinated among the providers and users in the existing business networks, the existence of multiple connections within complex capabilities means that a firm's perception of the focal and connected network relationships is crucial for gaining competitive advantage (cf. Anderson et al., 1994). A partner's contribution to the alliance may depend on the perceived incentives of its relationships in order to exploit the position of its resource interdependencies. This suggests: Hypothesis 1: In a focal

relationship, the value of a firm's relationships is positively associated with perceived incentives from the network.

#### **IV. RELATIONSHIP VALUE AND RESOURCE COMBINATIONS**

The resulting resource interdependencies of an organization on other entities through exchange and coordination of activities of one party with those of another constitute a network context. The network context comprises of network resources that could facilitate both the process of alliance capitalism and FDI by obtaining market information to gain efficiencies, circumventing market entry barriers for investors and making linkages to local establishments to reduce the risks of FDI (Bell, 1995; Coviello and Munro, 1995). Researchers studying the linkages that would enhance the strategic capabilities of investors through network relationships with local and foreign partners have focused on locational advantages that maximise the value of firm-specific assets (e.g., Dunning, 1981; Caves, 1971), but the implications of network context and resources for networking, be it local or foreign markets have been largely overlooked. The network context of an organization appears without boundaries and new network resources are formed through opportunity to interact. In particular, networking with various parties could provide venues for new opportunities (e.g., local and foreign investors) (Granovetter, 1982). This means that strong ties or established network relationships would not necessarily increase efficiencies (see e.g., Granovetter, 1973; Anderson et al., 1994; Rogers, 2003). Kogut (2000) also notes that networks are an integral part of the firm's value output, where value is a function of resource inputs (such as capital and labour), as well as value accrued from membership in networks. Thus, the value of a firm's relationships could include a combination of weak and strong ties in a business network context.

The arbitrary meaning of network boundaries is problematic for the purpose of identifying members of the network that create or add value to the focal firm. Networking through relationship management becomes critical as firms interact and exchange resources to develop complex capabilities. This requires the appropriation of resources to adapt to interdependent production, logistics, development and administrative activities and resources that need to be coordinated to bring about a better match between the firms in the network (Hallen et al., 1991). Although network similarities in FDI could reduce transaction costs and cut short the learning

process compared to forming new or foreign partnerships (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977), network change and value creation are often triggered by new activities or dissimilar relationships. The latter may entail establishing relationships with structurally dissimilar networks and/or strengthening weaker ties in the network. Network resources are critical for establishing such relationships in which established resource interdependencies are still lacking and the firm is taking greater risks (see, e.g., Johanson and Mattson, 1987; Dunning and Narula, 1996). The notion of networking by making new linkages provides support for enhancing the value of a focal relationship (Eng, 2005) and for the process of internationalization in FDI (Johanson and Vahlne, 1990).

The preceding paragraph shows that the value of a firm's position in the network context is not about delineating clear boundaries but with whom it is connected. As argued by Karamanos (2003), neglecting the network context in which firms are embedded leads to an incomplete understanding of the value of the firm. While conventional FDI focuses on investing in relationships that are structurally similar to domestic ones, the potential for creating value by firms in the same network is often limited. Also, firms from the same network background tend to make similar choices (Chen and Chen, 1998). The new firms and activities brought in through networking in a business network context enable firms to accumulate new and unique network resources in alliance capitalism. The presence of variety in networks allows firms to improve access to resources and resource combinations. The variety of new network relationships can be regarded as serving the focal or original relationships in which activities and resources are shared and coordinated (see, e.g., Chen, 2003). Therefore:

Hypothesis 2: In a focal relationship, a firm's interaction with its network members is positively associated with the opportunity of resource combinations.

## **V. RELATIONSHIP VALUE AND NETWORK CAPABILITIES**

In addition, the physical proximity of clusters of interfirm linkages and the agglomeration effect of a large number of firms in one geographical location support the presence of variety in networks and the importance of network capabilities. Foss (1999) notes that network capabilities are not reducible to individual firms but rather they depend on the interaction of firms within the



network. In alliance capitalism and FDI, numerous empirical studies have noted the importance of the choice of partners and locations for reducing transaction costs as well as for gaining access to firm-specific assets (see, e.g., Wheeler and Mody, 1992; Harrison, 1994; Audretsch and Feldman, 1994). Past studies of the FDI location decision explain the success of foreign investment based on structural characteristics of a network (e.g., mature and primitive markets), information flow within local networks or clusters of firms (Amin and Thrift, 1994), and an integrated view of transaction cost variables and availability of firm-specific assets (Dunning, 1997b). There is not yet empirical investigation on the effects of resource interdependencies and network capabilities on the value of a focal relationship in networks.

While the process of networking with new partners within the same network or through foreign networks in internationalization may create new opportunities and benefits that are shared with other firms, the role of focal relationships in securing and improving the firm's network position is critical in all choices pertinent to alliance capitalism and FDI. Interdependence of resources through the development and coordination of activities made at the focal level are pivotal to the network capabilities. Chen (2003) notes that primary investor is the key in establishing new linkages, which include new firms and activities for the internationalization process. This is analogous to the focal relationships where the interdependence of resources is most clearly established. Failure at this level of the relationship is likely to have a significant impact on other connected relationships of the focal parties such as second and third tier suppliers. This further illustrates that weaker ties and structurally dissimilar FDI markets are important for understanding the value of a firm in networks – though this entails a greater risk than structurally similar markets. The firm's decision on choices of partners, location, external resources sought and network position in alliance capitalism and FDI could influence the value accrued from members of its network. But the main concern in FDI and alliance capitalism is always in the interests of chief partners or focal relations, and thus network resources derived from a business network context are crucial for the value of a focal relation.

The value accrued from membership in networks is contingent on the resource interdependencies that facilitate the coordination and development of network capabilities. For example, agglomeration of firms in one location or region reinforces closer linkages between firms such as

clusters of firms (Porter, 1990), technology districts (Storper, 1992), national systems of innovations (Lundvall, 1992) and industrial districts (Pyke and Sengenberger, 1992). The benefits to be derived from linkages with the potential set of partners in an industry can be thought of creating an “opportunity structure” for each firm in the industry. In a business network context, the benefits from resource interdependencies span industry boundaries and network capabilities are the outcome of collective members of the network. This is consistent with alliance capitalism and FDI that are likely to be a joint decision rather than any unilateral decision by the firm. Since the network linkages is the result of the interactive choices of firms as they try and maximize the benefits to be derived from the FDI and alliance, the value of focal firms can be constrained by resources specific to the network. While it is not within the scope of this study to examine the nature of constraints, the value of the firm is dependent on the degree of control over constraints of the resource interdependencies in the network. As indicated above, it is at the focal level partners can exercise direct and more control over their actions as well as influence the outcome of network interactions. At the same time, the value of the firm may depend on the activities of other firms in the network that contribute to the network capabilities. This suggests:

Hypothesis 3: In a focal relationship, the value of a firm in a business network context is influenced by network capabilities.

## **VI. RESEARCH METHODOLOGY**

In order to examine highly networked firms within close geographical proximity that exchange resources for the development of complex products, the clusters of high-tech firms located around the area of Cambridge University and Cambridge Science Park in the United Kingdom provided a suitable network context for the present study. There are around 1,500 firms in the Cambridge clusters of firms, which is the largest concentration of high-tech firms in Europe (Barnard, 2001). Relationship management is critical in the high-tech sector due to highly specialized investment in technologies. Alliance capitalism and both inward and outward investments between firms are important for continuous innovation (Lundvall, 1992). High-tech firms also tend to form informal relationships with prospective business partners especially in the nascent stage of the relationship as a means to explore potential business opportunities and resource complementarities. This is also mainly due to the nature of research on technologies

that requires a long-term time horizon, where specifications in a formal contract is likely to change. As such, resource commitments are often characterized by complex linkages of activities and resources, and most prevalent in a focal relationship.

There are many small- and medium-sized subsidiaries of foreign multinationals and startup ventures from the United States in the Cambridge clusters of high-tech firms. In the context of FDI and alliance capitalism, most of these firms are equipped with the most resourceful and advanced firm-specific assets. They provide inward as well as outward investments such as exports and intellectual property rights. Since business firms are involved in the exchange of resources both tangible and intangible resources, the basis of exchange at the focal level is usually known as buyer-seller relationships. Clearly, the roles of the buyer and seller are interchangeable in a business context, with different firms and at different stages of the relationship. In this study, data on specific buyer-seller relationships and their network relationships were collected from the supplier's perspective. The study was concerned with the effects of resource interdependencies at the focal relationship level but not with the stages of relationship development. As the above research hypotheses suggest, the objectives of the study are to examine the development of alliance capitalism and FDI, in this case whether the value of a focal relationship is influenced by perceived incentives, variety of partners and network capabilities.

Research questionnaire was developed and pretested with managers from 12 high-tech companies based in Cambridge. Refinements on wording of scale items were made accordingly. Individual business managers responsible for managing the specific buyerseller relationship were contacted in the initial telephone screening for their cooperation. The final questionnaire was mailed to a random sample of 500 companies together with a letter to the business manager explaining the purpose of the study and assuring anonymity, and a prepaid return envelope. After one month, a reminder letter and another questionnaire were mailed to nonrespondents urging their participation. The resulting sample consisted of 127 usable questionnaires or about 25 percent response rate. The final sample was tested for nonresponse bias by comparing early and late respondents, and no statistically significant differences were found.

**Table 1 Multi-Item Scales**

## Measures and items

Focal relationship value (RELVAL)  $\alpha = .79$

A large proportion of our volume of business comes from direct exchange with customer relationships.

We form direct customer relationships to gain non-monetary rewards such as increase quality of our supplies, learn about our customers and social rewards.

Our direct customer relationships contribute most significantly to our profitability.

We regard our direct exchange customer relationships as the most important source of value adding activities for our business.

Resource ties (RESTIE)  $\alpha = .81$

Our resource connections with customer relationships provide significant source of financial rewards.

We see our resource ties with customer relationships as strengthening our market position.

The effectiveness of our customer relationships depends mainly on resource interdependencies with the customers.

Resource constellations (RESCON)  $\alpha = .76$

Our resources are closely linked with other firms in the network.

Our customer relationships are interconnected with other firms in the network

We regard our customers' relationships with other firms in the network as important in strategic decision making.

Some of our resources are closely connected with firms in the network.

Focal value constellations (ISOREL)  $\alpha = .82$

The value of our business is largely captured by our relationship with customers.

We thought our customer relationships as primary value constellations for the business.

Network value constellations  $\alpha = .81$

Our relationships with other firms in the network provide significant value to the business.

We see the value of business relationships in terms of a network of value constellations with other firms in the network.

Network capabilities (NETCOM)  $\alpha = .86$

Our competencies are to a large extent influenced by our networks of relationships, e.g., profitability, skills, market position and access to scarce resources.

We regard our relationships with firms in the network as barriers for competitors to imitate our competencies.

We thought of relationships with firms in the network as providing added value to our customers.

Focal capabilities (FOCCOM)  $\alpha = .76$

Our competitive strengths are mostly derived from direct customer relationships.

We thought our customer relationships provide us the most complementary resources.

Our customer relationships can act as barriers for competitors to imitate our competencies.

Seven-factor measurement model:  $\chi^2 = 81.24$ , d.f. = 43,  $p = .010$ , Bentler's Comparative

Fit Index = .96, Average Off-Diagonal Standardized Residual = .038

**NB: Scale items anchored on seven-point scales ``Strongly disagree – Strongly agree``.**

**Table 2 Correlation Matrix**

Constructs	Mean	Standard deviation	1	2	3	4	5	6	7	8
1. Focal Relationship Value	79	1.70	1.00							
2. Resource ties	4.10	1.43	.34	1.00						
3. Resource constellations	3.75	1.83	.28	.22	1.00					
4. Focal value constellations	5.10	1.07	.25	.27	.15	1.00				
5. Network value constellations	4.15	1.40	.30	.41	.25	.19	1.00			
6. Focal competencies	3.40	1.07	.23	.21	.18	.14	.29	1.00		
7. Network competencies	1.87	1.34	.30	.37	.12	.21	.18	.27	1.00	
8. Number of connected relationships	2.87	1.07	.28	.30	.09*	.00*	.14	.24	.38	1.00

\* $p < .01$

All the measures were manifestations of underlying constructs and consisted of reflective multi-item measures (see Tables 1 and 2). The dependent variable, the value of a focal relationship (RELVAL) was measured using perceptual measures based on non-monetary benefits and performance outcomes (Gladstein, 1984; Wilson, 1995). The independent variables analysed in relation to the relationship value in a business network context were: (1) resource interdependencies, (2) value constellations of a network context, and (3) network capabilities. In accordance with the concept of resource ties and constellations (see Håkansson and Snehota, 1995), the resource interdependencies construct accounted for both inter-connected resources between two firms (RESTIE) as well as beyond two firms or networks (RESCON). The former examined the perceived incentives at the focal firm level and the latter at the network relationship level. Specifically, the types of interdependencies examined were concerned with partnership and cooperation of joint research and development, production systems such as vertical supply chains, distribution software alliance particularly between local and foreign firms, and dependence and interdependence on resources, e.g., integrated chips, skills and knowledge. The perceived importance of engaging in multiple and variety of network relationships was examined by comparing the focal relationship value (ISOREL) with the network relationship value (ENCREL). The potential presence of network capabilities was measured by items describing (1) capabilities residing in the network of the focal relationship (NETCOM), and (2) capabilities within the focal relationship (FOCCOM). They were examined in terms of the benefits derived from alliance through interactions and resource interdependencies between firms in a focal relationship and with other firms in the network. Reverse items were used to compare the network effects on focal relationships. The influence of network capabilities on the focal relationship value was singled out and tested statistically by taking into account the number of connected relationships that has bearing on the focal firm (CONFOL).

The multi-item measures were measured by seven-point (“1=strongly disagree, 7=strongly agree”) and estimated using the maximum likelihood fitting function. Table 1 shows a seven-factor model estimated using EQS (Bentler, 1989) with the following statistics:  $\chi^2(43) = 81.24$  ( $p = .010$ ), Bentler’s Comparative Fit Index (CFI) = .96, Average Off-Diagonal Standardized Residual (AOSR) = .038). A series of chi-square difference tests on the respective factor correlations provide evidence of discriminant validity. In addition, the coefficient alphas

demonstrate reasonable reliability with values ranged from .76 to .86. A construct validity test was performed by comparing the multiitem independent measures with a dissimilar measure, namely, the estimated number of years required to develop a relationship. All correlations are positive and significant as expected ( $r = .36, p < .001$  and  $r = .43, p < .001$ ;  $r = .33, p < .001$  and  $r = .37, p < .001$ ;  $r = .42, p < .001$  and  $r = .38$  and  $p < .001$  for the focal resource and network resource interdependencies, focal relationship value and network relationship value, and capabilities in networks of relationships and competencies in a focal relationship respectively), providing evidence of convergent validity.

The substantive hypotheses were tested using an ordinal least squares regression model. The tests were performed by regressing relationship value against the six independent variables, the interaction between the independent variables and the one control variable. The interaction term provides a test of the effects of focal resource interdependencies and the combined effects of both focal and network resource interdependencies on the focal relationship value. In the presence of an interaction, a main effect is interpreted as the effect of a particular variable when the variable with which it interacts is 0 (Marsden, 1981). The estimated model is depicted in Table 3.

**Table 3 Estimated Model – Dependent Variable: Relationship Value (RELVAL)**

Independent Variables	Unstandardized Coefficient	T – Value
Constant	8.12	15.12**
RESTIE	.17	2.89**
RESCON	.27	4.15**
ISOREL	.31	2.56*
ENCREL	.21	3.69**
NETCOM	.25	4.27*
FOCCOM	.07	2.88*
RESTIE * RESCON	.18	3.52**
CONFOL	.11	-2.76*

\*  $p < .01$

\*\*  $p < .001$

## VII. DISCUSSION OF EMPIRICAL FINDINGS

In accordance with Hypothesis 1, the interaction term is positive and significant for the effect of both the focal and network resource interdependencies on relationship value ( $t=3.52$ ,  $p < .001$ ;  $t=4.15$ ,  $p < .001$  respectively), showing that the value of a focal buyer seller relationship is influenced by the perceived incentives derived from the buyer or seller's network relationships. This is common in FDI and alliance capitalism where buyer-seller relationships are managed, maintained and strengthened in order to seek foreign and/or external network advantages. For example, transnational firms that establish small subsidiaries in overseas location exploit local relationships and networks by locating different functions or stages of production to different countries (UNCTAD, 1993 and 2002, chapter V). The resource interdependencies at the focal buyer-seller relationship provide "deep integration", a term used by UNCTAD to describe transfer of functions in high value activities between partners. In other words, investment in resource interdependencies such as in production systems is substantive compared to arms length distance network relationships. Furthermore, local specialization in industrial clusters requires customized rather than standardized products (Freeman, 1991), which depends on close interaction and exchange of resources.

The perceived incentives in the network underlie the motives of FDI and alliance capitalism in three different instances: (1) market seeking FDI, to gain access to new market, (2) resource seeking FDI, to ensure or seek out new sources of national resources, and (3) efficiency seeking FDI, to take advantage of differential comparative resources (Rugman, 1993; Dunning, 1993). In particular, industrial clusters of high-tech firms provide membership to a large network of firms. The resource interdependencies established by local firms are perceived as value-adding to a focal relationship. In the case of foreign firms entering a new market, there is little relationship specific investment involved beyond the focal relationship especially in the early stages of the relationship. This concurs with Chen's (2003) study of internationalization of Taiwanese electronics firms, that focal relationships with network members will be further subordinated to both buyer and seller relationships over time.



While FDI and alliance capitalism theories recognise the importance of focal relationships for successful alliances, perceived incentives of focal resource interdependencies have not yet been considered. The perceived incentives are concerned with network resources that could enhance the competitive position of focal firms. However, the network resources available in the focal partner's resource interdependencies require investment in developing or transferring capabilities such as technological know-how. Strategic linkages come closest in examining the potential of strategic resources available in the network. This means that network resources that are available in the network rather than specifically belong to a focal relationship cannot be exploited instantaneously without further development. In the first instance, FDI between firms in complex technologies and transfer of knowledge depends on the focal relation and perceived incentives based on network resource interdependencies of the focal partner. The development of industrial clusters is a good example of how perceived incentives attract investors and provide the explanation for successful agglomeration of firms. This could also explain why high-tech industries tend to form clusters or network relationships.

The presence of a large number of firms in the same geographical location embraces networks of relationships, connected horizontally or vertically with other firms and across subsectors and industries. The geographical proximity of resource interdependencies between firms enables firms to participate in resource exchanges in order to exploit complementarities and firm-specific capabilities. This also allows small- and medium-sized firms explore new opportunities compared to conventional FDI which depends on large multinationals. For instance, a typical industrial cluster is characterized by networks of small- and medium-sized, vertically disintegrated firms (Storper, 1992). These firms tend to have specialised production systems designed to gain efficiencies. The proximity of networks of firms in the cluster is suitable for alliance capitalism through coordination between specialized systems. For example, multinationals may locate a subsidiary in a network of firms and capitalise on geographical location such as distribution systems.

The result of hypothesis 2 is positive and significant ( $t=3.69$ ,  $p<.001$ ). This suggests that the value of a focal relationship is positively associated with the opportunity to interact and develop resource combination with a variety of firms in the network. Although literature on strategic

networks and FDI have noted the importance of increased linkages particularly in a local context (e.g., Zander, 1999; Chen, 2003), the emphasis had been on increased interactions rather than networking with a variety of firms. This finding indicates that increased close linkages to networks at home are not only essential for developing production flexibility (Chen, 2003) but also the increased linkages can benefit from a variety of resource combinations. The latter is consistent with the strategic linkage theory in that, FDI linking firms to heterogeneous resources can enhance competitiveness. The variety of relationships in a network such as clusters of firms can be used to complement or supplant firm-specific capabilities. Networking is critical for exploiting and discovering new combinations of resources but it entails risk and subsequently, FDI has often focused on increased linkages to networks at home rather than overseas (see e.g., Chen, 2003). Also, few past studies examine FDI and alliance capitalism based on networking.

The result provides support for the production flexibility of extensive and interlocked network in industrial clusters, in which the variety of relationships adds value to partners' relationships in the network. Industrial clusters include diversified networks of relationships that support alliance capitalism by presenting a large scale production capacity. Firms in the industrial cluster are connected locally through resources that serve two purposes in FDI: (1) reduce risk of setting-up an entire operation in a foreign territory with the availability of local resource interdependencies; and (2) increase flexibility of firms through the potential to connect or add value to relationship with local networks. Also, failure to develop a focal relationship with one firm is less risky because of the perceived incentives in the network and the variety of relationships in the industrial cluster. It must be noted that making linkages to local networks entail adjustment and adaptation costs in the process of network integration. The variety of relationships can provide a sense of stability for firms operating in a foreign environment. The rapid flow of information within local networks makes it easy for an investor to develop relationships (Amin and Thrift, 1994), and reduces the transaction costs associated with the search for potential partners (Chen and Chen, 1998).

A variety of relationships can be viewed as potential choices of different investment opportunities. The increasing globalization of economic activity is changing the way transnational firms shifting their mobile assets (technology, skills, brands and production) across

the globe to find the best match with the immobile assets of different locations (Lall, 2002). Dunning (1998) also notes that firm-specific assets have become mobile across national boundaries. Mobile firm-specific assets present firms the potential to form linkages that add value to their investments or partnerships. In addition, industrial clusters create networked firms that are able to gain access to immobile functions such as R&D, production systems and facilities, training and strategic management. This suggests that the variety of relationships in the agglomeration effects emanating from clusters of interfirm linkages is a source of intangible assets for wealth creation. For example, the wealth of most industrial economies lies in intellectual capital assets rather than tangible assets (e.g., see Blair, 1995; Dyer and Singh 1998; Handy, 1989; Edvinsson, 1997; Dunning, 1998; Dunning 2004). This is particularly the case for industrial clusters in which firms can transfer intangible assets with other firms through the presence of immobile clusters of complementary value-added activities without the constraint of location.

The result of hypothesis 3 ( $t=4.27$ ,  $p<.001$ ) suggests that the value of a focal relationship is positively associated with the network capabilities. The result of the control variable shows that the value of a relationship does not necessarily depend on the length of the relationship ( $t=-2.76$ ,  $p<.01$ ). All the T values provide support for the combined positive effects of focal and network relationships on relationship value. The coordination of activities between firms serves to enhance their power position and capabilities. The positive effect on the focal relationship value indicates that resources jointly developed and/or shared by firms in the network contribute to network capabilities. Such capabilities are sources for the development of sustainable competitive advantage as purported by various resource-based concepts such as causal ambiguity and asset interconnectedness (Peteraf, 1993). In addition, the firms in industrial clusters have the advantages of geographical proximity and specialized production systems to develop competitive advantage through scope and scale economies compared to partnership between firms in different locations (Porter, 1990). The transactional benefits of spatial proximity have been noted by industrial and economic geographers (e.g., Storper, 1995; Scott, 1996).

The fact that the value of a focal relationship can be influenced by network capabilities lends support for alliance capitalism (Dunning, 1995), for example, the firms in industrial clusters

actively engage in collaboration and integration of functional activities such as R&D and joint production systems. While collaborative capitalism or alliance capitalism has attracted much attention in terms of the roles of different stakeholders in wealth seeking process, the focus on focal relationships such as in mergers and acquisitions and partnerships between local and foreign firms may fall short of providing insights into the influence of local network capabilities on the value of a focal relationship. This has implications for the development of capabilities at the focal relationship level that enhance both network position and capabilities of firms in the network particularly in the case of industrial clusters. Specifically, the network approach to analyzing network resources and linkages could point to asset-augmenting activities through relationship between firms in terms of sharing and transferring knowledge and intangible assets. In this view, alliance capitalism and FDI with a focal partner may be influenced by other members in the network, leading to the emergence of a variety of interfirm cooperative agreements such as the need for firms, customers and government agencies to work as partners to achieve economic goals of society.

This finding is also consistent with various surveys that demonstrated international firms are increasingly seeking locations that offer the opportunity to enhance existing core competencies as well as develop new investments (e.g., Fabrice Hatem, 1997). Network capabilities belong to certain locations and they are not easily transferable from one location to another. They are unique and developed over time through interactions between firms that give rise to deepening interdependency of resource linkages in the network of relationships. The surge in knowledge intensive industries has further relied on the network approach to developing close interactions and exchange of resources, which depend on both internal and external coordination of business functions between partners. In FDI, knowledge transfer between partners not only requires close interaction for the development of mutual trust but also support of local infrastructure, i.e., location specific assets. The development of focal relationships with potential partners is critical for acquiring network capabilities in internationalization (Chen, 2003). For example, there is rapid growth in strategic asset-seeking FDI (UNCTAD, 1997) with the focus on accumulating new strategic assets or network resources through mergers and acquisitions. Such arrangements develop strong focal relationship with a foreign or local partner to access strategic assets in the network.

### **VIII. IMPLICATIONS FOR PUBLIC POLICY MAKERS**

There has been an increasing shift from the reliance on natural assets to the creation of intangible assets in industrial nations as a way of sustaining comparative advantages between firms and countries (Dunning, 1997b). This shift highlights the importance of forming linkages in order to accumulate and create new value added resources associated with the interaction and exchange of resources between firms. Public policy makers, namely governments play a key role in formulating policies to attract local and foreign investors that would impact on the economic well-being of the country such as create new jobs and increase household incomes and firm competitiveness. As suggested by the result of hypothesis 1, perceived incentives in a partner's network relationships can influence the value of a focal relationship. It is important that governments take into account the perception of measures introduced in the market particularly for the clusters of firms in a geographical region. For example, incentives introduced through domestic trade policies can help attract or retain the increasingly mobile resources across national borders. Perceived incentives from a focal relationship have implications for developing the competitiveness of the country. This is most pertinent for the development of intangible resources, which are path dependent and cannot be easily traded across borders or locations (cf. Dierickx and Cool, 1989). The high-tech firms in this study often engaged in long-term partnerships for the development of new technologies (Eng, 2004). Dunning (1997b) also points out that technology and organizational capacity are excellent examples of intangible assets.

The attractiveness of a location or host country for foreign investors often depend upon perceived strategic value, in that new locations or markets should provide investors with the opportunities to accumulate new network resources and forge new relationships, e.g., access to new markets. This is in line with the basic goal of internationalization, where firms develop and acquire new resources as opposed to merely migrating to a new location or country. The key implication for the governments is that public and organizational policies play a decisive role in influencing the locational decisions of firms. Governments could establish mechanisms for promoting local relations between firms through the availability of public funds for new start-ups and public infrastructure. The perceived incentives of a focal relationship extend beyond the immediate partner to exogenous factors not within the control or at least not directly by an

individual firm. Government policies can exert a significant influence of the extent of the impact of exogenous factors on individual firms in the national and regional contexts. For example, regional competitiveness may be affected by tariffs, quotas, sales taxes, price or production controls, and structural or endemic market imperfections. These factors can influence locational decisions of local and foreign firms that would affect the cost of engaging in capital investment by local firms and foreign subsidiaries. Dunning (1997b) points out that government may affect the cost of obtaining capital by raising or lowering interest rates, by loan guarantees, controls on remitted dividends, by investment guarantee schemes, and by exemptions from capital gains taxes. From a network approach, the resource interdependencies amongst firms in a regional network would influence the perceived incentives for FDI and alliance capitalism. In particular, networked firms carry the lowest risk in FDI and also provide firms with the flexibility to respond to environmental changes and uncertainties. In a survey of business in China published by *The Economist* (March 2004), most foreign companies in China form joint venture partners with local Chinese companies to lower their risks associated with cultural differences and legislative ambiguities.

While governments and multinational enterprises can work together to create competitive markets by helping to reduce transaction costs such as structural inefficiencies of market regulations, the present study shows that local connections of resources established in and through business relationships are perceived as value. Moreover, non-equity relationships in business exchange are not only a fast way for foreign firms to engage in economic activities but also could facilitate firms to develop new assets. As indicated by the result of hypothesis 2, the variety of relationships in a network context increases the opportunity to enhance the value of resource combinations. While markets cost resources to set-up, operate and maintain, exchange and relational business relationships are mechanisms for the development of economic activities. In contrast to investment in locational infrastructure, the use of relationship is costless (Dunning, 1997b) as new or foreign firms would be expected to initially develop relationships in basic exchange of information in the process of selecting and making substantial resource commitments. The more choices a firm has for the exchange and investment in a similar location, the greater the opportunity to take advantage of unique resource combinations. In FDI, foreign firms are more likely to succeed and/or create new wealth by taking advantage of

heterogeneous resources from the variety of relationships in one location. Government efforts should be directed to helping small and medium-sized enterprises in start-up costs and locational infrastructure such as power supply and transportation. The implication is that government policies can promote participation of local relations and attract new start-ups. The latter could help create new assets with existing focal relationships and attract FDI as firms reduce transaction costs related to information searching and collecting exercises with regards to different locations.

Since the functioning of markets are frequently influenced by government policies, government involvement in helping small and medium-sized enterprises should promote competitiveness and improve economic performance in the regional clusters of firms. Though investment incentives for new firms and/or FDI are aimed at establishing local linkages, the presence of a variety of firms and relationships is putting pressures on firms to create, organize and utilize assets efficiently. Governments priority in market functioning should be to achieve a balance of supporting local linkages and improving firm competitiveness. The former may better attract participation of firms in the market as regards locational decisions of firms, FDI and the desired business environment for developing cooperative business relationships. Governments would not only affect the competitiveness of local firms in their ability to export and compete in an international market, but also the interdependency of firms such as collaboration in production systems, concentrated production lines (e.g., outsourcing) and supply chains. In this instance, resource interdependencies that underlie the interdependency between firms serve the purpose of asset creation to reduce transaction and production costs that would attract new entrants due to endemic market imperfections (Dunning, 1997b). Firms' investment in assets and resource coordination will also create a lock-in effect, generating competitive intensity and comparative advantage of a location.

Although governments can help stimulate market conditions and promote the competitiveness of a location by reducing the costs of market failure, the long-term competitiveness of the firms is embedded in the location. The latter recognizes that firm capabilities are produced through the process of interaction and exchange of resources. They are affected by firm actions, network capabilities and exogenous factors. The result of hypothesis 3 suggests that the competitiveness

of the firms in a location is influenced by the location itself or the network context and the collective resources connected between firms. The types of incentives provided by the government will influence the locational preferences of foreign direct investors. In the high-tech industry, both the location-specific assets e.g., R&D facilities and physical infrastructure, and knowledgebased assets of the firms in the location for asset-augmenting FDI and resource seeking FDI are the main factors that influence the locational decisions of firms. Dunning (1998) notes that traditional forms of FDI have changed as foreign affiliates have moved to more knowledge intensive and down-stream higher-order (e.g., innovatory) activities. In this instance, high-tech firms in industrial clusters tend to engage in specialized activities and foreign affiliates tend to have more concentrated product lines. The presence of other firms in the locational context would determine the nature of resource interdependencies and linkages. For example, individual firms in an industrial cluster form the supply chains of overall production capabilities of the market. The literature on the locational preferences of FDI has shown that the presence of other foreign investors in a particular country is regarded as an important signalling effect to other foreign firms less familiar with that country (Srinivasan and Mody, 1997; Liu, 1998), and as an agglomerative magnet by which firms benefit from being part of a geographical network or cluster of related activities and specialized support services (Dunning, 1998). Braunerhjelm and Svensson (1995) have also noted a positive and significant statistical relationship between the three agglomeration benefits (infrastructure quality, degree of industrialization and existing level of FDI) and the presence of pecuniary externalities associated with demand and supply linkages through the diffusion of knowledge, e.g., spillover effects, resulting from a clustering of related firms. Governments need to promote collaboration in the industry and facilitate the functioning of markets to help efficient utilization of assets in ensuring the markets in which firms compete are perfect or near-perfect markets.

While markets have become more global and firm-specific assets are increasingly mobile for cross-border transfer of assets, the competitiveness of the economy with regards to export earnings and inflows of FDI is influenced by established relationships in a local network context. Drawing from the results of this study, there are two main implications for governments in policy making. The first is that interfirm relationships are conduits for exchange and flow of knowledge. From a network perspective, firms co-evolve with one another in performing and



coordinating activities particularly in the exchange of technical and complex knowledge. Although foreign direct investors are increasingly seeking locations which offer the best economic and institutional facilities for their core competencies to be efficiently utilized, the exchange of complex knowledge that often leads to innovation requires time for the development of trust and commitment. Firms in the industrial cluster have established relational norms that are crucial for transfer of tacit knowledge and intangible resources (cf. Boyer and Orléan, 1992). As such, they are not easily transferable and governments need to take a strategic view of promoting local linkages that contribute to the competitiveness of a region. Secondly, network capabilities are not only influenced by the collective resources of the firms in a network context but also by the geographical proximity of firms in the same location. In particular, the exchange of complex technical knowledge requires close interaction between firms. This relates to the need to establish trust and mutual understanding of business objectives between individual firms. The main concern is market efficiency in that firms' membership in the network would facilitate the flow of knowledge and give rise to the network capabilities. Clearly, government policies can influence the efficiency of markets by helping to reduce start-up costs, promoting economic benefits of agglomeration for firms, minimizing the costs of market failure and taking a proactive approach in attracting multinationals.

It is also important to recognize that network capabilities, formed through resource interdependencies between firms in a network context, are the competitive advantages of regions. This is particularly the case for industrial clusters as their competitive advantages impinge upon spatial transaction costs and dynamic external economies, such as those to do with complex technologies, uncertain or unpredictable markets, inter-active learning, face-to-face discussions and the exchange of uncodifiable knowledge (Florida, 1995; Storper and Scott, 1995). Spatial transaction costs are concerned with geographic proximity in the exchange of resources. Industrial clusters are characterized by the spatial grouping of firms engaged in related activities. The firms in the industrial clusters represent a network context that individual firms are connected to each other in order to coordinate and perform resource activities. They are likely to benefit from the presence of each other and have access to localized support facilities, shared service centres, distribution networks, customized demand patterns and specialized labour inputs

(Maskell and Malmberg, 1999; Rees and McLean, 1997). The deepening of value-added activities in developed countries also renders support for the importance of network capabilities. Government policies are crucial in economic planning and strategic investment of resources that support both organizational policies and international competitiveness of the nation, including regions and national competitiveness.

## **IX. CONCLUSIONS**

This study has drawn insights from the network approach for the analysis of alliance capitalism and FDI in the context of industrial clusters. It is based on the premise that business relationships between firms in a network context are inter-connected through resource interdependencies, where firms interact and exchange resources. The alliance of firms in networks of business relationships has implications for wealth creation and economic well-being in terms of the perceived relationship value in a focal (dyad) and network of relationships, and firms' capabilities in the network. By examining the effects of resource interdependencies and network capabilities on the value of a focal relationship, this study provides insights into the value of relationship in FDI and alliance capitalism and highlights the implications for governments in investment promotion and in economic policies for the creation of new assets located in their national boundaries. Firms in clusters of relationships are not only able to enrich the resources of a location through their linkages but they could also create and strengthen the competencies of firms in the network. Although conventional theory views FDI as an attempt by investors to exploit firm-specific assets in foreign markets, local firms benefit from the collective structure of network resources particularly through the clustering effects that enable local firms and investors to build up value-added linkages. Through interfirm relationships, local firms are able to leverage external resources to improve one's economic performance in the industry. The establishment of local relations would increase the perceived incentives of the location for foreign direct investors. The variety of firms and their network resources has a major effect on alliance capitalism in terms of increasing the potential for cost efficiency through complementary assets, creation of new assets by combining heterogeneous resources and utilization of scarce resources. It follows that the core competencies of a firm is derived from the collective resources of other firms in the network or network capabilities that would enhance national and

international competitiveness of the firm. Although the evaluation of FDI usually begins with the focal partner, the partner's linkages with other firms underlie the network capabilities. Also, the wealth creation process is embedded in the networks of relationships, which are dynamic and have evolved over time, e.g., an investor takes time to consolidate its organization's assets in the process of developing external resources.

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