THE ALLIANCE STRATEGY AND FIRMS' PERFORMANCE: INSIGHTS FROM RESEARCH ON THE ICT INDUSTRY

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ABSTRACT

The prime objective of this study is to explore the partnering strategies in the context of the global ICT Industry. Currently, cooperation is one of the most effective ways to acquire a broad set of necessary resources. Based on a sample of leading ICT firms and over 10,000 ties, two alliance strategies have been identified: exploration strategy, representing a multiplicity of weak ties and exploitation strategy, representing the traditional meaning of strategic alliances; associated with strong ties. This study shows that currently, in the global ICT Industry, exploration alliances dominate over exploitation alliances. Additionally, the exploration strategy seems to be more effective in this dynamically changing Industry.

INTRODUCTION

The purpose of this paper is to highlight the importance of the partner portfolio building strategy in global industries, as well as to indicate the quality of ties in a firm's alliance portfolio impact on a company's success in a dynamically changing environment. The paper is organized as following. Firstly, a brief overview of the literature in strategic management, alliance portfolio and industry dynamics is presented. Secondly, a theoretical framework of firms' success (market performance) related to partnering strategy is described, and the hypotheses are formulated based on such a framework. Finally, the hypotheses are empirically tested using the sample of alliance portfolios of leading global companies in the Information and Communications Technology (ICT) Industry. This paper discusses the findings and implications for management practice and provides directions for further research.

THEORETICAL BACKGROUND

Fundamental issues have long been discussed in strategic management cover sources of differences between firms, differences among firms' maneuvers, the determinants of firms' scope, behavior and success or failure. However, new discussions have emerged related to these issues due to the changing environment and organizations themselves. One of the most important phenomena is globalization. The concept of "global strategy" refers to a strategy created on a global scale, taking into account the possibilities offered by the processes of globalization as well as global competition (Ghemawat, 1991, Spulber, 2007, Peng, 2009). Firms' maneuvers on a global scale are presented in the literature based on two main research traditions: the first is Resource-Based View (RBV) and the second, Competitive Positioning

School. Research interest according to these traditions has focused on resource creation and innovation (Hamel and Prahalad, 1989; Schumpeter, 1934, 1950; Senge, 1990), competition (Chen, 1996; D'Aveni, 1994; Porter, 1980; Smith, 1992), cooperation (Contractor and Lorange, 1988; Dyer and Singh, 1998; Hamel, Doz and Prahald, 1989) and also "co-opetition"—namely, collaboration with current or potential rivals (Bailey, 1997; Brandenburger and Nalebuff, 1996; Doh, 2000).

Interfirm cooperation - alliances, networks, portfolios

According to Kogut (1988), Hamel (1989), Yan (1998), and Low (2007), one of the most effective ways of building a competitive advantage as well as protecting a firm's position on a global scale is by creating strategic alliances. Currently, alliances are seen as a way to acquire external, "network resources" (Gulati, 1998, 2007). This motive seems to be extremely important in Industries such as the global Information and Communications Industry (ICT), which is one of the fastest growing, dynamically changing, technological and knowledge intense global Industries (Low, 2007). One of the key success factors in such a market is "time to market", which provides complex solutions to the customers faster than the competition (Fine, 1998).

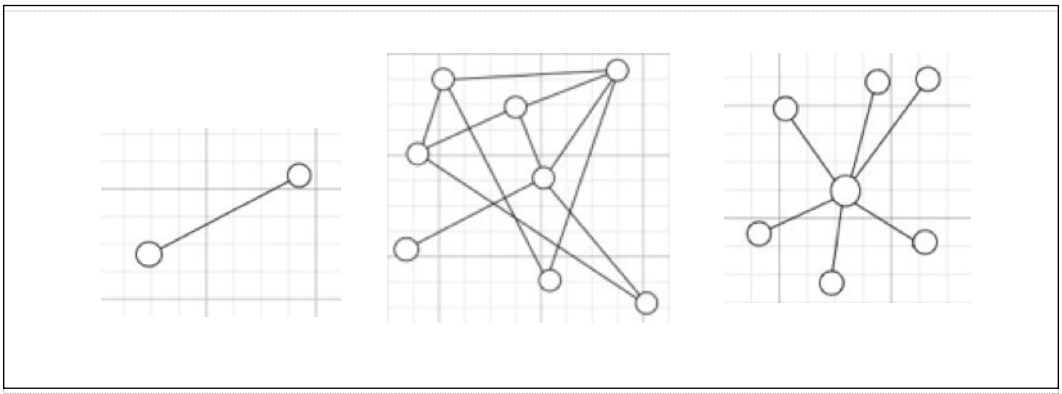
Interfirm cooperation is increasingly being selected as a response to the customers' demand for complex solutions requiring multiple sources of technology, knowledge and innovations (Contractor and Lorange, 2002). Partnering is also a way to share risk and to gather new or develop existing knowledge (Hamel and Prahald, 1989). Cooperation with the partners, including potential competitors, traditionally allows the reduction of uncertainty by establishing a negotiable environment (Cyert and March, 1963, Hirsch, 1975).

Recently, alliances have been considered in the literary texts in three major dimensions. Firstly, direct alliance between two or more firms, having determined the scope, duration, targets, and purpose (Direct Alliance). Secondly, constellations of alliances or networks, including multiplicity of interfirm ties (Networks). Lastly, a special kind of network, namely an egocentric network with the focal firm in a central position (Alliance's Portfolio). Figure 1 presents all of these three perspectives.

Networks.

Research focuses on the patterns of relationships between interacting "social actors" – firms involved in alliances. There are both structural and relational aspects analyzed here. Research on the impact of the number of alliances and network characteristics (embededdnes, structural holes) on the characteristics of firms such as innovation, new product development, revenue growth, market share, profitability, market value, the composition of partners in the network, their innovation and relevance, performance, and more recently, the dynamics of competition in the market sectors (e.g. Gulati, 2007, Farina, 2008, Burt, 1992, Ahuja, 2000, Powell, Koput, Smiss-Doerr i Owen-Smith, 1999).

Figure 1: Direct Alliance, Network, Alliance portfolio.



Direct Alliance

Research in this area focuses on the relational aspects of alliances, such as the dynamics of interfirm ties, learning within a relationship, relationship characteristics and its influence on the characteristics of involved partner firms (e.g. Gulati, 1998, Kogut, 1988, Cyert i March, 1963, Hirsch, 1975, Dyer i Singh 1998, Ahuja, 2000).

Alliance portfolios

Research in this area addresses the impact of alliances on central (focal) firm characteristics. Portfolios differ from networks mainly because they are analyzed from the perspective of a central positioned focal firm (e. g. Lavie, 2006, 2007, Shiplov, 2006, Lee, Lee, Pennings, 2001, Silverman, Baum, 2002). Alliance portfolio approach has been used in this study.

Firms' partnership strategies

Most researchers agree with the fact that the quality of alliances is an important issue. In literature, the quality of alliances is associated with the strength of ties, based on such characteristics as purpose, scope, time horizon, and intensity of ties.

According to Granovetter (1973), the strength of ties is based on a combination of time, emotional intensity, intimacy (mutual trust) that characterizes the relationship. Rowley et al. (2000) characterizes the strength of ties by the frequency of interaction between partners. Types of firms' cooperative strategies associated with alliances are related to the strength and purpose of ties, and the way of knowledge creation or transfer (March, 1991, Dussauge et al., 2000, 2004, Dittrich, 2002, Contractor and Lorange, 1988). In this article, namely, exploration strategy is associated with weak ties while exploitation strategy is associated with strong ties.

The greater the uncertainty in the market environment, the stronger the need for innovation to survive and the more possible it is for that firm to decide on an exploration strategy (March, 1991). This strategy allows for the experimentation of new, uncertain, risky sectors,

testing rules and strategic choices. Exploration alliances do not usually involve joint capital (Koza and Levin, 1998) and are used to access new information, as well as to gather new knowledge from the network, rather than from a particular partner (Granovetter, 1973).

Exploration alliances such as interfirm ties and marketing agreements are weak and less costly (Contractor and Lorange, 1988). Exploitation strategy is associated with exploitation, strong ties (Krackhardt, 1992), social capital (Bordieu, 1986, Portes, 1998) and a high level of network embeddedness (Granovetter, 1985).

Exploration alliances are associated with a deeper understanding of a partner's business, thus, this strategy is used more frequently when specialized knowledge is required. One of the aims of such a strategy is to strengthen existing ties and expand existing knowledge and therefore only particular, valuable partners are selected to form direct partnerships with measurable commitment. Partners are often redundant when it comes to their own connections with other companies. They are focused on strengthening their own knowledge base rather than accessing new ones. The duration of ties is also important in this type of strategy. This strategy is characterized by a greater number of contracts with the same partner, longer relationships and often cooperation.

An important aspect of this situation is the social capital in order to build trust in such a relationship (Knoke and Kukliński, 1982, Wasserman and Faust, 1994). Some researchers argue that both strong and weak ties may provide useful benefits for allies. The adequate balance in a firm's alliance strategy of strong and weak ties is currently being discussed in literature (Dittrich, 2000). It is worth taking into account that the choice of ties types is often related to the environment in which the company operates (Rowley, Behrens, and Krackhardt, 2000).

The more uncertain the environment and dynamically changing Industry, the more possible that firm's decision to explore new possibilities using exploration alliances (Lant, Millken, and Batra, 1992). Hypothesis 1a and 1b have been defined.

H1a The Focal firms' portfolio summary includes more weak ties than strong ties.

H1b In recent years, the average cumulative increase of weak ties is greater than that of strong ties in the focal firms' partners' portfolio.

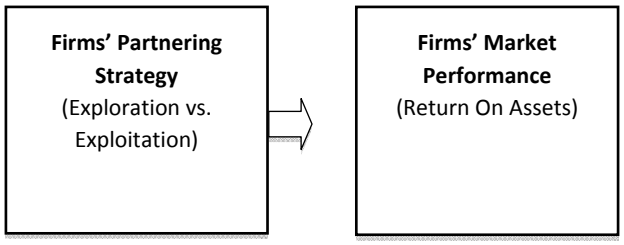
Previous studies have indicated that strategic alliance networks lead to an asymmetric access to resources in the industry, thereby affecting firms' behavior and performance (Granovetter, 1985, Burt, 1992, Nohria, 1992). Farina (2008) developed and tested the idea of the impact of network structure and network embeddedness on firm performance. They treated the network as the external resource that a company can use in strategic maneuvers in order to increase its efficiency. Other studies have shown that the relationships in the network are potential sources of external resources for the company (Langlois, 1992, Nohira, 1991) when their effectiveness depends on the network structure (Burt, 1992) as well as the firm's internal capabilities (McEvily and Zaheer, 1999). Alliances with well-equipped partners (e.g., technology, finances, marketing, human resources) contribute to the growth of the company and

its market performance (Lavie, 2006, 2007). Taking into account the fact that alliances and alliance networks may influence firms' market performance, the impact of this type of partnering strategy on the performance emerges as an additional significant issue. Therefore, Hypothesis 2 has been defined as below.

H2 *An exploration strategy in global, knowledge-intense, dynamically changing global industry is more effective than an exploitation strategy alone.*

In order to operationalise this hypothesis we can say that the greater share of weak ties in focal firms' portfolios, the better the firms' market performance, while exploitation alliances may decrease the firm's performance. The theoretical framework for this study is summarized in Figure 2.

Figure 2: Theoretical framework.



DATA AND METHODOLOGY

Phenomena related to the global strategy used are clearly evident in the ICT industry. ICT, which includes firms providing both services and products, is one of the fastest-growing sectors (Fine, 1998). Information and communication technologies are becoming increasingly important in the context of all areas of business and social life (Goddard and Richardson, 1996).

Technological development and convergence of services lead to a huge number of alliances, mergers, acquisitions, strategic partnerships and groups of alliances (Varun and Khawaja, 2003).

Data

The data collected for this research covers 30 of the most significant global focal firms in the ICT industry (based on 4 digit SIC codes) that offer, in their business, portfolio solutions, including products as well as services dedicated to telecommunication operators who have had at least five years of experience in financial reporting on Infinancials databases. Focal firms' alliance portfolios data was collected from the SDC Platinum Database, covering alliances from almost a 25-year period: 1985 to 2009. The alliance data for the analysis covering the years from 1990 to 2009 is considered to be both reliable and relevant, due to its data completeness and timelessness. Following Anand and Khana (2000) and Lavie (2007), records of ties formed by each focal firm have been compiled. Subsequently, records have been validated and corrected by

searching publicly announced alliances in press releases and corporate web sites of focal firms. In total, more than 20,000 ties were identified for all focal firms. After cleaning the data and removing terminated alliances, the final sample had 10,247 alliances in the focal firms' portfolios. For each alliance the type of tie was coded, based on the purpose and the scope of alliance.

Measures

Tie strength. Although ties between firms can take many forms, including both strong and weak ties, following Nohira (1991) this study identified ties for each company's portfolio and groups them into two categories. Strong ties (Granovetter, 1985, Uzzi, 1996, Larson, 1992, Krackhardt, 1992) included capital alliances, joint ventures, production joint ventures, R&D alliances and multiple agreements with the same partner. Such relationships are wider and deeper in terms of interactions. Meanwhile, weak ties (Powell, 1990, Koza and Levin, 1998) included marketing agreements, license agreements, selling and service agreements, which are less costly in management and coordination than strong ties.

Firms' performance. Focal firms' performance was measured by Return on Assets (ROA), a commonly used method in literature. Global ICT is a fast growing and dynamically changing environment, which has been created from several different Industries including telecommunication, Internet, IT and media (TBR, 2009). The value of sales seems to be an adequate measure of a firm's performance. Both measures have been used in an initial analysis and it should be mentioned that there was no significant difference in both measures in terms of a coefficient analysis. According to the European Commission of Information Society and Media (The world's economies depend on Information & Communication Technologies (ICT), 2010), a significant difference exists in the meaning and contribution of ICT to productivity before and after 2000. Prior to 2000, the US played a primary role in shaping the global ICT industry. After 2000, the EU as well as the Asian and Pacific region became increasingly important on a global scale. Therefore, the research covers a 10-year time period, from 2000 until 2009.

Controls

In order to control a firm's level variables I focused on leading (in terms of size, significance due to the industry reports, and SIC qualification) global ICT vendor firms.

Firm-level controls included firm size (number of employees, total sales value) and alliance portfolio size (there was no statistically significant correlation between the number of ties and firms' performance in the sample). There was also a controlled multiplicity of ties with the same partner in portfolio (assuming that multiple agreements entail more complex management) and portfolio internationalization (there was no significant difference between the share of foreign partners in the analyzed firms' portfolios). I also controlled the inter-industry variation (by using SIC codes) and the economic downturn effects by analyzing the firms' performance and selecting the years between the decreases of sales, for detailed correlation analysis.

Analysis

In order to ensure the most recent and reliable data, the research covers a 10-year time period, from 2000 until 2009. I calculated the focal firms' market performance and all variables relating to their alliance portfolios in each year. After reviewing the previous research, I confirmed that there is no significant difference between the observations per firm in the assumed period of time. The analysis was conducted using the Person's correlation, regression analysis, coefficient and independent-Samples T test, to analyze the difference between the groups' – share of weak and strong ties in firms' alliance portfolios. Hierarchical *F*-tests revealed that the four theoretical variables are significant.

RESULTS

Regarding Hypothesis 1a, the total share of all weak ties in focal firms' alliance portfolios was 70.2 percent, while the proportion of strong ties was only 29.8 percent. This is a significant reason to regard Hypothesis 1a as being true. Exploration strategy seems to be predominant in the tested sample of focal firms. Moreover, there was also an investigation into the total growth of the total share of weak ties in focal firms' alliance portfolios year 2000 to 2007.

The results confirmed Hypothesis 1b in terms of the partnering strategy development: The total share of weak ties in firms' portfolios increased by 405.99 percent on average, while the share of strong ties increased by only 98.14 percent on average. The analysis using the Pearson's correlation coefficient for Hypothesis 2 indicated a statistically significant relationship between share of ties' type in focal firms' portfolios and their market performance.

The analysis results indicated a significant coefficient ($R = .42$, $p < .018$, adjusted $R^2 = .15$), supporting Hypothesis 2. Firms' performance increased as the share of weak ties in their alliance portfolio increased. Table 1 presents the results for all key variables.

Table 1: Detailed correlation tests results for Hypothesis 2.

	Focal firm's ROA (Return on Assets) [%]
Total share of weak ties in focal firm's alliance portfolio [%]	$R = .42$ $R^2 = .19$ Adjusted $R^2 = .15$ $N=30$ $F(1,28)=6.2$, $p<.01$

DISCUSSION

Currently firms' cooperating strategies are being widely discussed in literature. Due to some research (e.g. Gulati, 2007) in the global market sectors, access to "network resources" is crucial for firms' survival. The findings of this study contribute to the understanding of the link between a firm's performance and partnering strategy. The results show that exploration strategy, based on weak interfirm ties, which are less costly then exploitation and strong alliances, in a

global ICT Industry, seems to be more effective and may lead to strengthening the firm's competitive advantage.

In the ICT Industry fast technological development and increase of customer expectations brings the need for complex, "end to end" solutions, what means that no one has equal, complex resources to meet these requirements. Due to this, cooperation is crucial for firms in this industry. In global, technological and knowledge- intense industries, typically characterized by a high dynamic of changes and industry growth, exploring new options and creating new useful knowledge seems to be more important than enhancing existing knowledge, building long term relationships based on a fixed scope and jointed capital and mutual trust. It is worth considering what the sources of alliance strategy are choosing in relation to global leaders.

Taking into account that focal firms represent different countries from the US, Asia and Europe, the next step should be to investigate the possible reasons of a firm's strategy choices. There is undoubtedly a need for expansion beyond the alliance portfolio area of research, involving both formal—legal, economic, political—and non-formal—institutional factors related to cultures, ethics, and standards existing in different countries. These rules may significantly affect business development, competition and above all the building of alliance, relationships and agreements among partners from different cultures. There are several studies in literature on cultural and organizational differences, geographical distance, communication and learning problems that are typical for cross-border alliances (e.g., Barkema et al., 1997, Parkhe, 1991, Simonin, 1999) and the differences may also impact a global firm's partnering strategy.

CONTRIBUTIONS

The present study contributes to both literature and managerial practice, examining the role of alliance portfolio creation in a global environment by defining and conducting the co-operation strategy. The weak and strong ties shared in alliance portfolio demonstrate the significant interaction effect on the global ICT firms' performance. Research has demonstrated that managers should adapt their strategy to the changing environment and be aware of the importance of decisions concerning alliance creation. In case of global firms, as well as for entrepreneurs, the meaning of co-operation with external partners is one of the most significant factors that shape the venture performance. For this reason, the contribution of this study to managerial practice and the success or failure of multinational ventures is meaningful.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

There are several main limitations of this study. To begin with, the number of ICT firms is limited to 30. In further research it should be extended as the expansion of global players will continue to grow.

Secondly, in this study, Return on Assets was calculated as a firm's performance, which might be seen as a limitation to some extent. In the rapidly growing and changing ICT industry,

sales are the most appropriate measure of indicating market performance. It's quite possible that further studies may be needed to investigate additional financial measures to identify the most affected areas of companies' activities.

Thirdly, as there are correlations between the variables measured, this is the first step to deepen quantitative research. Fourthly, there was only quantitative data on alliances differentiating them between 'weak' and 'strong' ties. It is possible that due to the sector characteristic, a more subtle approach would be recommended.

Prior experience can in fact result in differences in benefits (Gulati, Lavie, Singh, 2009), which in turn can have an impact on market performance, regardless of the type of ties. Considering that the ICT field has an increasing impact on many other industries, further studies may also extend the research in order to compare companies' strategic actions and alliance strategies in other industries.

Further research could extend or modify the current study along several dimensions. For instance, although the sample of focal firms for this study was limited to 30, a larger number of focal firms can be used in further research and the sample could also be extended to smaller ventures. In addition, the chosen time period has not been affected by the world economic crisis, which offers an interesting timeframe for analyzing how economic slowdowns could affect global firms' partnering strategies.

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