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Dynamic evolution of alliance portfolios

Ignacio Castro *, Cristóbal Casanueva, José Luis Galán

University of Seville, Department of Business Administration and Marketing, Avda Ramón and Cajal, 1, 41018, Spain

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ABSTRACT

This research advances in the conceptualization and the operationalization of the factors or microdynamics that determine the choice of partners. Most of the literature in this area of research has centered on the individual alliance without taking into account the set of alliances that a firm makes. This research applies a holistic approach, analyzing the set of alliances as a whole and points to the factors related to alliance portfolios that affect the choice of partners. The authors propose a longitudinal model that allows us to analyze the evolution of interorganizational networks. A Simulation Investigation for Empirical Network Analysis (SIENA) has been applied to a sample of 229 firms, analyzing 10,556 strategic alliances established between them over a 12 year period. The results show that certain factors over which managers exercise a degree of control (deliberate endogenous microdynamics) exert significant influences on the choice of partners by the focal actor and thereby on the dynamic configuration of alliance portfolios.

Introduction

Over recent decades, a broader swathe of firms is increasingly reliant on strategic alliances to compete more appropriately and to achieve growth (Barringer & Harrison, 2000; Parmigiani & Rivera-Santos, 2011). Hence, many firms find themselves embedded in a dense network of interorganizational networks alongside competitors, clients, suppliers, and other organizations (Hoffmann, 2007). In consequence, the analysis of inter-firm alliances has become a relevant research topic in the field of organizational studies (Carpenter, Li, & Jiang, 2012; Schilke & Goerzen, 2010).

Although research has principally centered on the analysis of individual alliances (Ahuja, 2000b; Chung, Singh, & Lee, 2000; Gulati, 1995a), attention has recently shifted to the study of the alliance portfolio generated by the individual firm (Heimeriks, Duysters, & Vanhaverbeke, 2007; Sarkar, Aulakh, & Madhok, 2009). According to social network theory (Wasserman & Faust, 1994), an alliance portfolio may be understood in terms of a firm's egocentric network of alliances (Baum, Cowan, & Jonard, 2010); in other words, it is made up of all the direct ties with its allies (Baum, Calabrese, & Silverman, 2000; Ozcan & Eisenhardt, 2009). In a recent review of alliance portfolios, Wassmer (2010) pointed to the existence of three main research questions, the study of which is still at an early stage: the emergence, the configuration, and the management of the alliance portfolio. A complete analysis and understanding of the emergence of the alliance portfolio and its configuration (Wassmer, 2010) makes it necessary to reconsider the problem of network evolution and, more specifically, makes it necessary to examine which factors determine the choice of partners in greater depth (Ahuja, Soda, & Zaheer, 2012; Lavie & Singh, 2012). Accordingly, although previous literature exists on the motives behind the choice of individual partner alliances (Ahuja, 2000b; Gulati, 1995a; Walker, Kogut, & Shan 1997) and also on how the characteristics of the partners affect performance (Baum et al., 2000; Lavie, 2007; Stuart, 2000), these researchers have centered on the individual alliance without taking into account the set of alliances that a firm makes and, therefore, the structure and composition of both the real and the desired alliance portfolio.

The researchers have sought to justify the evolution of alliance portfolios through two approaches. In the first place, the dynamic exogenous processes of portfolio evolution, which seek to reflect the nature and the intensity of competition, as well as critical events that occur in the sector (Koka, Madhavan, & Prescott, 2006; Lavie & Singh, 2012); and in second place, they have underlined the importance of processes of endogenous evolution based on structural path dependence (Chung et al., 2000; Gulati, 1995a; Gulati & Gargiulo, 1999) and life-cycle stages (Dyer & Nobeoka, 2000). Among these endogenous processes, Carpenter et al. (2012) pointed to the existence of two forces as determining factors in the formation of the focal firm's ties with other actors. On the one hand, future opportunities for the development of the actual network (Gulati, 1995a; Gulati & Gargiulo, 1999); accordingly, the focal actor usually acts in a reactive way, conditioned by the social structures of the surrounding network (Carpenter et al., 2012). On the other hand, the focal actor can develop the characteristics of its alliance portfolio in a proactive way, in accordance with its individual interests or requirements (Provan, Fish, & Sydow, 2007).

* Corresponding author. Tel.: +34 955 554432; fax: +34 955 5569 89.
E-mail address: icastro@us.es (I. Castro).

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This work centers on this latter force, analyzing co-evolution between the focal actor and the configuration of its alliance portfolio and, more specifically on the endogenous microdynamics that determine the choice of new partners with which to build such ties, when they are chosen (Gulati & Gargiulo, 1999). Some researchers have pointed out (Ahuja et al., 2012; Wassmer, 2010) that most of the literature in this area of research has adopted a static perspective, without taking the role of time into account, as very few studies have applied a longitudinal and dynamic perspective (Hoffmann, 2007). Wassmer (2010:162) highlighted the importance of understanding, through these longitudinal studies, "how and why firms change the configuration of their alliance portfolios over time". In this process of the configuration of alliance portfolios, the decisions over the choice of partners are based in great measure on time, if consideration in that choice is given to strategic and utilitarian factors and they are not simply determined by random and intuitive ones (Ahuja et al., 2012; Gimeno, 2004). It is essential to understand the previous state of the alliance, so as to make satisfactory decisions over its future configuration, in order to study the choice of partners from the perspective of the alliance portfolio. The dynamic component and evolution are therefore essential for a good understanding of the choice of partners and the emergence and configuration of alliance portfolios.

In short, important questions are still raised in the literature that summarize or scrutinize the configuration and evolution of interorganizational networks such as, how the alliance portfolio as a whole influences the choice of partners, or what factors influence that choice, considering purposeful management of the alliance portfolio by the firm. This work seeks to make a contribution to the literature, from a theoretical perspective, by developing a longitudinal model that allows us to analyze the evolution of interorganizational networks. This may help us to understand better how these networks are generated and how the architecture or structure of the alliance portfolios develops in those firms that possess a competitive advantage linked to their alliance portfolio performance (Ahuja et al., 2012; Tolbert, Salancik, Krackhardt, & Andrews, 1995). Likewise, this research seeks to make an empirical or practical contribution, identifying the main deliberate endogenous factors that affect the choice of partners by the focal actor. This may allow for a better understanding of the composition of the alliance portfolio and, in this way, improve the strategic management of alliance portfolios, as over time these acquire the characteristics or specifications that best adapt to the objectives and interests of the focal actor (Ahuja et al., 2012; Gulati & Singh, 1998).

This paper is organized in the following way, to achieve its proposed objectives. We begin with a review of the literature on the configuration and the evolution of alliance portfolios, in order to identify and measure each of the factors or microdynamics that determine the choice of partner by the focal actor. Subsequently, these factors or microdynamics are analyzed over a 12 year period, by means of a Simulation Investigation for Empirical Network Analysis (SIENA) applied to the Spanish civil works sector, through a longitudinal and dynamic model. Finally, this work closes with the main findings, its limitations and the future research lines.

Theoretical framework

The coevolution of alliance portfolios: microfoundations and microdynamics

The majority of investigations conceive of an alliance portfolio as the sum total of the strategic alliances of a focal actor (Bae & Gargiulo, 2004; Hoffmann, 2007; Wassmer, 2010). The literature on interorganizational networks defines an alliance portfolio as the egocentric network of a focal actor (Ozcan & Eisenhardt, 2009; Rowley, Behrens, & Krackhardt, 2000). In short, taking the alliance portfolio as the unit of analysis makes it essential to consider the set of all alliances jointly held by the focal actor, in the establishment and management of a particular strategic alliance (Hoffmann, 2005; Hoffmann, 2007).

An alliance portfolio is configured over time both through the formation of new alliances (Ahuja, 2000b; Chung et al., 2000), and through the dissolution of existing strategic alliances (Reuer & Zollo, 2005). Despite the importance of the temporal variable in the process of the configuration of the inter-organizational networks, there are few studies that have inquired into the dynamic and longitudinal evolution of alliance portfolios (Dyer & Nobeoka, 2000; Hoffmann, 2007).

Gulati, Nohria, and Zaheer (2000) pointed out that the dynamic of an alliance portfolio may be influenced by both exogenous and endogenous factors. The exogenous factors cover the nature and the intensity of competition, as well as critical events that occur in the sector. Gulati and Gargiulo (1999) signaled interdependence as one of the main exogenous factors. The endogenous factors, which are oriented towards the choice of partners, refer to the dynamic relationship that is generated by the fact that the focal actor is found embedded in a network (Gulati & Gargiulo, 1999). In this way, these authors analyze structural, relational and positional embeddedness as the main endogenous factors that determine the formation of the networks.

Ahuja et al. (2012) noted that certain mechanisms determine the emergence and the evolution of a network, referred to as their microdynamics, which arise from a series of microfoundations in the evolution of the network. These microfoundations are conceptualized by Ahuja et al. (2012) as a series of basic factors that drive or develop the formation, the persistence, the dissolution, and the content of the network nodes. The authors consider that there are four primary microfoundations that allow us to explain the genesis and evolution of networks: agency (Emirbayer & Mische, 1998), opportunity (Blau, 1994), inertia (Kim, Oh, & Swaminathan, 2006) and exogenous/random factors (Mizruchi, 1989), which operate through a series of microdynamics that drive the formation, evolution, dissolution and contents of network ties. Agency refers to the motivation and ability of the focal actor to either form or to dissolve ties with certain alters, the specific characteristics of which permit the position of the ego to be improved or to shape advantageous structures of its alliance portfolio in such a way that it reduces its own ego-dependency on its alters and, in return, increases the dependency of the alters upon it. Opportunity is based on the argument that the focal actor tends to be tied to other alters with which they share certain characteristics within the same group and not with actors that belong to other different groups. Inertia is related to the durability of social structures as well as to certain social processes, according to which the actions performed by the focal actor are influenced, directed, and limited by institutional norms and pressures. Finally, exogenous and random factors are those that arise or exist outside of the network, or that are simply generated within or outside the network under analysis in a casual and not in a deliberate way (Mizruchi, 1989).

Lavie and Singh (2012) demonstrated that interaction between the strategy of the firm and the configuration of the alliance portfolios constitutes a mechanism, through which the firm and its alliance portfolio co-evolve in response to changes that occur in the surroundings of the firm. In consequence, the alliances are independently and simultaneously configured in the organizational, institutional, and competitive environment of the firm (Lorenzoni & Lipparini, 1999). Along these same lines, some authors (Gulati & Gargiulo, 1999; Koza & Lewin, 1999; Lavie & Singh, 2012; Lewin, Long, & Carroll, 1999) have considered interaction in the dynamic of an interorganizational network between exogenous and