Long Range Planning 49 (2016) 129–144

Contents lists available at ScienceDirect

Long Range Planning

journal homepage: http://www.elsevier.com/locate/lrp

Influence of Institutional Differences on Firm Innovation from International Alliances

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This paper explores the contribution of the institutional perspective in understanding firm innovation returns from international alliances. It argues that formal and informal national institutions are of different nature, and give rise to explicit and tacit differences respectively between alliance partners. Partners exhibit different attitudes and abilities to negotiate and address such differences in leveraging the innovation potential of international alliances. As a result, we expect such differences to have distinct effects on partners' innovation performance: a) the effect of informal institutional differences is approximating sigmoid (S-shaped), with innovation performance slightly increasing first, then improving further and finally reaching a flattening plateau as informal institutional difference between partners increase; and b) the effect of formal institutional differences resembles an inverted U. Support is provided for both our contentions in a longitudinal sample of 110 UK biopharmaceutical firms. The paper contributes to existing understanding of firm innovation performance from international alliances, and broadly, to the management of internationalization in alliance portfolios.

Introduction

Firms increasingly use alliances to pursue a range of objectives: to gain access to complementary resources and competencies, technologies and skills, to expand their operations in different markets and to share the risks and costs of high-end R&D (Mowery et al., 1996; Rothaermel, 2001; Rothaermel and Hill, 2005). Despite the extensive use of alliances, their role in firm innovation and financial performance is equivocal (de Man and Duysters, 2005; Deeds and Hill, 1996; Hoang and Rothaermel, 2005). Potential explanations are the heightened coordination challenges as partners' knowledge bases become increasingly dissimilar and the firms' limited abilities to manage alliances effectively (Rothaermel and Deeds, 2006; Sampson, 2007).

A prominent feature of alliances is their international dimension with firms forming more international alliances compared with domestic (Hagedoorn, 2002; Kang and Sakai, 2000). The international location of alliance partners can introduce additional coordination problems in sharing and exchanging knowledge and resources. Nations and institutions acting at the national level remain an important and distinct factor underpinning differences across international firms (Carlsson, 2006; Gertler, 2001). Such differences can affect partners' learning (Lyles and Salk, 1996; Parkhe, 1991; Simonin, 1999) and firm financial performance from alliances (Lavie and Miller, 2008; Vasudeva et al., 2013).

In this paper, we employ the institutional perspective (North, 1990) to argue that formal and informal institutions shaped at the national level (Edquist and Johnson, 1997) give rise to different sources of enablers and constraints in international alliances and have distinct effects on firm innovation performance. The differing nature of such institutions shape partners' attitudes and abilities to coordinate the liabilities of such differences and to leverage the innovation potential of international alliances. First, we propose that informal institutions give rise to tacit (Polanyi, 1966) and elusive differences between international alliance partners and as a result their impact on firm innovation performance is approximately sigmoid. Second, we argue that formal institutions give rise to explicit and codified (Polanyi, 1966) differences between international alliance partners and as a result the effect of formal institutional differences in international alliances on firm innovation performance resembles an inverted U-shaped pattern. Our study complements existing literature, which proposes a linear effect between institutional differences and international alliance performance, and sheds new light on existing conflicting empirical evidence (Lyles and Salk, 1996; Parkhe, 1991; Simonin, 1999).

Indeed, existing empirical literature on the role of institutional differences on the performance of international alliances and partners is highly ambiguous and emphasizes greatly the role of informal institutions compared with formal institutions.

http://dx.doi.org/10.1016/j.lrp.2014.09.005

A part of this literature finds informal institutional differences to be insignificant in determining alliance performance (Fey and Beamish, 2001); another favours local alliances over international ones (Hennart and Zeng, 2002; Mowery et al., 1996); and a remaining group of studies shows that alliances between partners from different informal institutional settings perform better compared with domestic alliances (Park and Ungson, 2001).

Our study contributes to the extant literature in several ways. First, by distinguishing between the different character, explicit and tacit, of formal and informal institutions we provide a solid foundation for theorizing about international alliances and their effect on firm innovation (Dunning and Lundan, 2008; Estrin et al., 2009; Gelbuda et al., 2008; North, 1990). Second, this work enriches our understanding of the role of institutions in firm innovation from international alliances, contributing to the literature on alliance performance and management. These contributions are appealing as institutions determined at the national level have long been argued to facilitate firm innovation and to influence cross-national differences in firm innovation competitiveness (Lundvall et al., 2002; Lundvall, 1992). However, how institutional differences may influence firm innovation from international alliances is not yet thoroughly explored. This paper could inform managerial practice and decision making with regards to internationalization in alliance portfolios (Bierly and Gallagher, 2007; Madhok, 2006; Yung-Chul, 2008). Finally, this study explores an original empirical setting using a bespoke dataset of innovation alliances initiated by 110 UK biopharmaceutical firms between 1991 and 2001.

The remainder of this paper is structured as follows. Section 2 discusses the existing empirical literature and elaborates on the role of institutional differences in firm innovation from alliances. Section 3 elaborates on the type of liabilities raised by formal and informal institutions and develops our hypotheses. Section 4 discusses the methodological approach, the data sampled and empirical variables used. Section 5 provides our analysis and results, and Section 6 discusses our findings and concludes the paper.

Background and literature review

Liability of foreignness and international alliance performance

The national systems of innovation literature (Lundvall, 1992; Nelson, 1993) argues nation-specific characteristics, embedded in national institutions, such as the educational, legal, intellectual property and financial systems, to underpin firm competitiveness and innovation performance. For example, the strength and characteristics of such institutions have contributed to the enduring competitiveness of the UK's pharmaceutical industry (Georghiou, 2001; Nelson, 1993). The role that national institutions can play in firm innovation becomes particularly apparent in cases of institutional transformations and transitions in political systems. Liberalization of markets could strengthen aspects of national institutions over time, boost investments in R&D, encourage an entrepreneurial ideology, and foster innovation and local capacity for learning (Steensma et al., 2005). The international business literature has emphasized the importance of the institutional perspectives as a key determinant of firm structure and behaviour (DiMaggio and Powell, 1983; North, 1990; Scott, 1995). Scott's (1995) institutional perspective, encompassing the regulatory, normative and cognitive pillars, is mainly employed discussing the development of appropriate entry mode decisions, and in particular gaining corporate legitimacy in the local context (Xu and Shenkar, 2002; Luo, 2001; Meyer, 2001). The institutional perspective which also encompasses and operationalizes the distinct but related aspects of informal and formal institutions (Edquist and Johnson, 1997; North, 1990), is more appealing in understanding how the "liability of foreignness" shapes partners asymmetries in alliances. Therefore, our study is grounded in a relatively broad conception of formal and informal institutions which we view as a framework to provide guidelines to depict partners' knowledge exchange, sharing and learning in alliances[1] shaped by institutional differences. Research in this domain also argues, cross-border partners represent the values and norms of the institutions determined at their home nation (Hennart and Zeng, 2002; Park and Ungson, 1997; Parkhe, 1991; Shenkar and Zeira, 1992).

Herein, we determine formal and informal institutions as follows. Formal institutions give rise to cross-national differences due to employment regulations, intellectual property systems and appropriability regimes, business systems and rules of operation, the functioning of financial markets, and levels of fiscal and economic stability (North, 1990). Informal institutions are systems of shared meanings embedded in norms, values, beliefs and collective understanding of a society, that are not codified into documented rules and standards (North, 1990). Representing shared values and non-codified standards, culture is an important reflection of national informal institutions and reflects a socially constructed reality-shaping cohesion, logics of action, and coordination among individuals within a society (North, 1990; Orr and Scott, 2008; Peng et al., 2008). Literature indicates social norms and cognition are influenced by national culture, provide a foundation that shapes how individuals view the world (Chui et al., 2002), and may influence how they make sense of events occurring in that world (Witt and Redding, 2009), helping them to interpret explanations offered by others (Zilber, 2006). Informal institutions represent cultural-cognitive elements by influencing attitudes to work, ways of thinking and behaving, perceptions of organizational purpose, communication, approaches to problem solving and conflict resolution (Cullen et al., 1995; Szulanski, 1996).

Institutional frictions can increase the costs of conducting business in countries embedded in disparate institutions, due to the increasing unfamiliarity of a firm with the local institutional setting (Brouthers et al., 2008; Scott, 1995). Increasingly

[1] In this paper we use the term alliances to refer to any type of collaborative agreement between two or more organizations (Gulati, 1998). These agreements can take any form and may involve equity ownership or joint ventures.