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Exploration versus exploitation in alliance portfolio: Performance implications of organizational, strategic, and environmental fit☆

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ABSTRACT

How does the nature of firms' alliance portfolio in terms of exploration versus exploitation affect performance? Building on prior research grounded in the resource-based view and the relational perspective, we expand firms' boundary to include their inter-firm relationships and their immediate environment, and develop an extended resource-based framework centering on the concept of fit. Specifically, we propose that whether the exploration versus exploitation orientation of an alliance portfolio may benefit firm performance depends on how such an orientation fits the firm's internal organizational characteristics, strategic orientations, and the industry environment. Data from five U.S. industries over eight years largely support our thesis. Overall, our study calls for a holistic approach to consider the importance of *organizational*, *strategic*, and *environmental fit* in understanding the performance implications of alliance-formation choices.

1. Introduction

While strategic alliances often carry positive implications for firm performance (Das et al., 1998; Schreiner et al., 2009), how and when such impact may manifest have not yet been systematically examined, in particular when a firm can have multiple alliances with different purposes (Lin et al., 2009). Under what conditions does a firm's alliance portfolio lead to superior performance? To address the research question we extend the resource-based view with a relational perspective, and argue that the performance implications of a firm's alliance portfolio need to be considered in terms of its fit with organizational, strategic, and environmental factors.

According to the resource-based view, firm behaviors are resource-driven (Barney, 1991; Dierickx and Cool, 1989). Yet, such a traditional view tends to treat firms with closed boundaries within which resources reside. Meanwhile, more scholars have started to recognize the relational nature of a firm and the broad social and economic environment that a firm is embedded in. For example, Dyer and Singh (1998), Lavie (2006), and Arya and Lin (2007) have proposed an extended resource-based view to bridge the traditional resource-based view and the relational perspective. In line with this direction, we build on the more recent and extended resource-based view, which expands firms' boundaries to their inter-firm alliance relationships and the alignment with their external environment (Dyer and Singh, 1998; Lavie, 2006). From such a perspective, we view firms' alliance portfolio (in terms of exploration and exploitation) as their capabilities of accessing and deploying different resources in inter-firm relations, and further emphasize how important these capabilities need to *fit* with firm characteristics, strategic orientations, and industry conditions.

Our study intends to contribute to the literature in four important aspects. First, while the purpose of a strategic alliance may be for mutual benefits, the benefit of an individual alliance may not always be transferable to the parent firm (Baum et al., 2000; Gulati, 1998). In this study we thus move beyond individual alliances to examine the impact of a firm's alliance portfolio. Specifically, we ask how alliance-formation choices between exploration and exploitation in a firm's alliance portfolio affect firm performance. By viewing alliance formations as firms' strategic choices in terms of exploration and exploitation, we attempt to explore the mechanism through which rents are created from such alliance-formation choices. In this sense, our study also contributes

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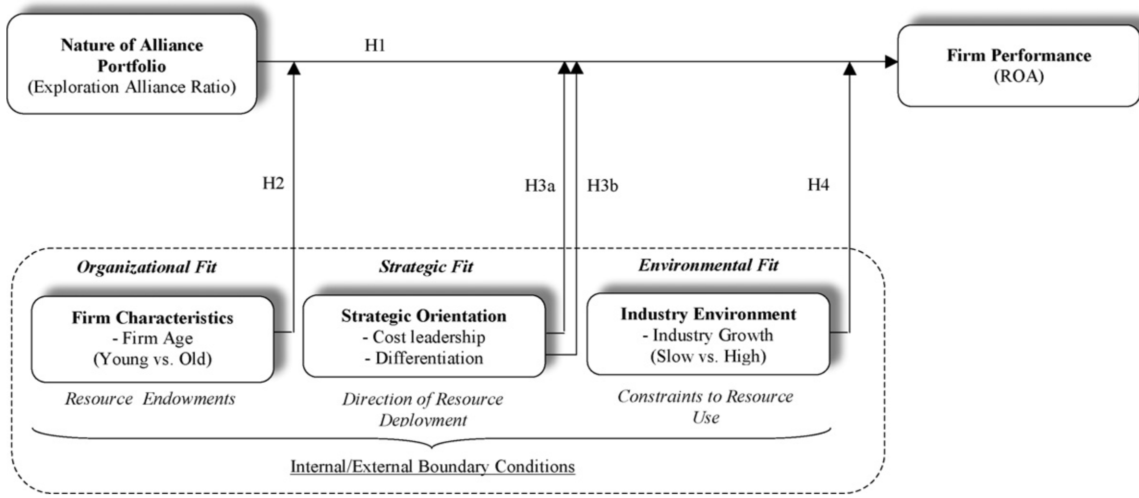

Fig. 1. Theoretical framework.

to the burgeoning literature that delineates the boundary of the exploration–exploitation paradigm.

Second, we clarify the relationships among firms' alliance purpose, competitive strategy, and performance. This study builds on the recent stream of research (e.g., Ruiz-Ortega and Garcia-Villaverde, 2008; Vorhies et al., 2009) that extends the resource-based view through meshing it with other perspectives (e.g., competitive strategy, relational perspective). We further advance the extended resource-based view (Dyer and Singh, 1998; Lavie, 2006) by applying it to the study of strategic alliances while considering firms as having open boundaries with inter-firm alliance relations.

Third, in implementing the extended resource-based view, we highlight the importance of fit – organizational, strategic, and environmental fit that affects firm performance – as suggested in other studies (e.g., Kratzer et al., 2008). Specifically, we explore whether a firm's alliance portfolio leads to superior performance when its resources are combined effectively with appropriate organizational characteristics, strategic orientations and environmental circumstances (Dickson and Weaver, 1997). Our approach not only addresses endogeneity issues commonly confronted by prior studies in this area, but also examines the impact of fit among internal and external *boundary conditions* that affect firm performance. To truly understand strategic alliances it is as important as exploring the antecedents to examine the consequences of a firm's alliance-formation choices and its boundary conditions (Lin et al., 2009).

Fourth, we attempt to make a contribution to the literature by empirically testing our model in a multi-industry setting. While prior research has generally focused on one industry (Park et al., 2002; Rothaermel, 2001a), we employ a multi-industry context to increase heterogeneity within our sample. Overall, our study extends the resource-based framework to include not only firm characteristics but also their inter-firm relations and their immediate environment when investigating the role of a firm's alliance portfolio on firm performance (Lavie, 2006; Rothaermel, 2001b).

2. Theory and hypotheses

As behavioral players, firms are embedded in the broad social and economic environments and must rely on their past experience for future actions (Cyert and March, 1963; March and Simon, 1958). To deal with the uncertainty and ambiguity of the external environment, managerial discretion is often reflected through the choices of flexibility and stability (Burgelman, 1991, 2002) or in the words of March (1991), "exploration and exploitation." Exploration is associated with terms like search, variation, risk taking, experimentation, discovery, and innovation; while terms like refinement, production, implementation, and execution are associated with exploitation (Levinthal and March, 1993; March, 1991:71). Koza and Lewin (1998) further extend the concept to strategic alliances and suggest that those with the purpose for discovery and development of new technology including research and development (R&D) alliances and technical alliances are exploratory in nature, while those with the purpose for efficient transactions and utilizations of resources including licensing alliances, marketing alliances, and supplying alliances are exploitative in nature.

Yet, how such alliance portfolios of different purposes may impact firm performance has not received sufficient investigation until recently (Jiang et al., 2010; Lavie, 2007). One of the constraints may be partly attributed to the fact that prior studies have largely relied on the traditional resource-based view (Barney, 1991; Dierickx and Cool, 1989), which tends to treat firms with clearly defined boundaries within which resources reside. Consequently, strategic alliances are often considered as the result of firms' internal calculations alone. In this study, we build on the more recent and extended resource-based view, which bridges the relational perspective and expands firms' boundaries with their inter-firm alliance relationships and the alignment with their external environment (Dyer and Singh, 1998; Lavie, 2006). This is also consistent with the purpose of strategic alliances, which is about pooling partners' resources together to explore and exploit internal and external resources (Das and Teng, 2000; Noda and Bower, 1996; Park et al., 2004; Rivkin and Siggelkow, 2003).

In sum, we argue that firm performance can be affected by the choices of exploration/exploitation alliances in its alliance portfolio. Further, this main effect is subject to a joint consideration of its fit with organizational, strategic, and environmental characteristics as we believe that organizational characteristics such as firm age reflect the level of resource endowments; internal strategic orientations such as cost leadership and differentiation strategies entails the way in which a firm deploys its resources; external environmental contexts such as industry growth constrains the supply of resources. Consequently, our research question is: How does the fit between alliance-formation choices and organizational characteristics, strategic orientation, and industry condition affect firm performance? Our theoretical framework is presented in Fig. 1.