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An empirical study of the impact of firm resources on alliance governance structures

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ABSTRACT

Alliances between smaller biotechnology firms and larger pharmaceutical firms are the backbone of new product development strategies within the pharmaceutical industry. While pharmaceutical firms seek access to new technologies and products, small biotechnology firms depend on these alliance relationships to access key resources such as financing and downstream capabilities because they typically do not have the resources needed in-house to successfully commercialize their products. In this study, we investigate the governance structure of these alliance relationships arguing that the more resource rich a biotechnology firm is, in terms of technical, commercial, and social capital, the less likely it is to give up equity to an alliance partner. Results suggest that greater biotech patent quality, cash position, and alliance credibility impact the type of governance structure that is chosen by the alliance partners and therefore the extent of control that the biotechnology firm is willing to give up in the relationship.

1. Introduction and background

Alliances are voluntary, cooperative agreements between two or more firms designed to achieve an advantage for the partners (Das and Teng, 2000) often by providing firms with access to resources that

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are too difficult or too costly to develop internally. As a result, alliances are a vital component of firm strategy, particularly in industries characterized by rapid technology change such as the biotechnology industry (Teece, 1992; Bessy and Brousseau, 1998). Within the biotechnology and pharmaceutical industries, alliances are often formed between smaller more entrepreneurially oriented biotechnology companies and larger well established pharmaceutical firms. Biotechnology firms typically specialize in a particular area of scientific or technical expertise and their ability to leverage their expertise is key to firm growth and survival (Rebentisch and Ferretti, 1995).

Biotechnology firms rely on strategic alliances to bring in resources that enable firm growth and survival such as financing (Coombs and Deeds, 2000), downstream capabilities (Dickson et al., 2006) and improved market valuation (Janney and Folta, 2003). Larger pharmaceutical firms ally with smaller biotechnology firms in order to access valuable resources in specific technologies or potential products in certain therapeutic segments that they are either lacking internally or that are more efficiently brought in from outside of the firm. However, the resources that are vital to the alliance relationship may also be core to the competitive advantage of the smaller firm. As such, the smaller firm's resource contribution to the alliance can greatly influence the leverage that the smaller firm has in relation to how the alliance is set up and managed.

Despite the need for resources from the pharmaceutical firm, the biotechnology firm may desire to retain equity in order to appropriate more of the profit stream from its technology when fully developed and commercialized. Allowing the larger pharmaceutical firm to purchase equity in the biotechnology company when the alliance is formed may mean that the biotechnology firm relinquishes some decision making authority over the alliance technology and subsequent profit stream from the specified technology.

We examine this complex relationship from the perspective of the smaller biotechnology company. Specifically, we examine how the resources of the smaller biotechnology firm influence the choice of governance structure in alliances with large pharmaceutical firms. The governance structure of an alliance is the contractual agreement that administers the alliance (Gulati, 1998; Gulati and Singh, 1998)—it dictates the terms of the alliance and the framework through which it will be managed.

Equity-based governance structures give the investing partner greater influence and financial stake in the smaller company which creates a difficult dilemma for biotechnology companies. Should a biotechnology firm give up equity in order to gain access to needed resources or opt for less involvement in the form of a non-equity arrangement with an alliance partner? This leads to the research question that we address in this paper: How do the resources that a biotechnology firm owns influence the governance structure of its alliance relationships with pharmaceutical firms? Following Ahuja (2000), we examine three types of biotech firm resources: technical, commercial, and social capital. These three resources represent a firm's most valuable assets. Technical capital is a firm's knowledge-base or technical competence (Ahuja, 2000). Commercial capital is a firm's ability to fund its current and future operations. Social capital is the goodwill available to firms through its connections to other firms (Ahuja, 2000; Adler and Kwon, 2002). By applying Ahuja's (2000) framework to biotech-pharmaceutical firm alliances we begin to explain the choice of governance structure in complex alliance relationships within a dynamic industry with rapid technological change.

While Ahuja (2000) argued that technical, commercial, and social capital play a key role in the formation of an alliance relationship we extend this notion to suggest that they also explain how alliance relationships are subsequently structured for biotechnology firms. Technical capital, a firm's knowledge base or technical competence, may be a biotechnology firm's most valuable asset and source of competitive advantage and, thus, its key source of leverage when forming an alliance with a resource rich pharmaceutical company. The amount of commercial capital the biotechnology firm has represents its ability to stay in business without a capital infusion from the alliance relationship. And, social capital represents the firm's connections to other organizations or the extent a firm is networked to other firms. Drawing on resource-based and social capital theories of the firm, we relate the amount and type of the biotechnology firm resources to the extent of equity it retains in an alliance relationship. We suggest that the more resource rich the biotechnology firm, the less willing it is to give up equity to an alliance partner.