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Developing reputation to overcome the imperfections in the markets for knowledge

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Abstract

In addition to exploiting knowledge in own products and services, firms may externally commercialize their knowledge assets, e.g., by means of licensing out technology. Despite strong imperfections in the markets for knowledge, the commercialization of knowledge assets has recently become a broader movement. However, prior research has often neglected the external mode of knowledge exploitation despite the contradictory situation that some pioneering companies realize enormous benefits whereas most other firms experience strong managerial difficulties. Therefore, we analyze whether firms may increase their performance in licensing out technology by initiating market pull effects due to the reputation of being a valuable knowledge provider. We derive six hypotheses regarding determinants and consequences of building reputation, taking into account technological turbulence as an external contingency factor. The hypotheses are tested with new measures and data from a questionnaire-based study of 152 firms across industries. The results show that firms may overcome the imperfections in the knowledge markets by actively developing reputation. The path-dependent nature of reputation contributes to explaining the discrepancies between the success of some pioneering companies and the difficulties of most other firms.

Keywords: Reputation; Status; External knowledge commercialization; Licensing; Markets for knowledge

1. Introduction

In the past, most firms pursued closed approaches to exploiting their knowledge assets (March, 1991; Chesbrough, 2003a). By focusing on the application of knowledge inside the organization, many companies have neglected the opportunities of externally commercializing knowledge assets, e.g., out-licensing transactions (Teece, 1998; Rivette and Kline, 2000). External knowledge exploitation refers to the commercialization of knowledge exclusively or in addition to its application in own products and services of a firm. In recent years, this complementary mode of knowledge exploitation, e.g., out-licensing, has become a broader movement in practice (Grindley and Teece, 1997; Lichtenthaler, 2005). Some pioneering companies realize enormous monetary and strategic benefits by externally leveraging knowledge. Regarding the monetary benefits of these activities, IBM's licensing revenues, for instance, amounted to more than US$ 1.9 billion in 2001, up from merely US$ 30 million in 1990 (Chesbrough, 2003b; Kline, 2003).

At the same time, there is the contradictory situation that most other firms experience major difficul-

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ties when they attempt to commercialize knowledge assets (Bidault and Fischer, 1994; Lichtenthaler, 2005). "[C]ompanies trying to imitate the success story of for example IBM's licensing program, often fail to initiate such an [sic!] deployment program due to market imperfections" (Escher, 2003, p. 215). As a result of the inefficiencies in the knowledge markets, commercializing knowledge assets, e.g., out-licensing, is much more difficult and complex than commercializing goods in the product markets (Teece, 1981; Bidault and Fischer, 1994; Arora et al., 2001; Mathews, 2003). In particular, the identification of potential knowledge customers, e.g., licensees, usually constitutes a major challenge in commercializing knowledge assets (Ford, 1985; Tschirky et al., 2000; Arora et al., 2001; Escher, 2003; Lichtenthaler, 2005).

To overcome market inefficiencies, firms use a variety of instruments, such as establishing particular contract specifications, modularizing technological knowledge and relying on intellectual property protection (Teece, 1998; Bozeman, 2000; Granstrand, 2000). Moreover, formal and informal networks have traditionally played an essential role in compensating for the lack of market transparency (Bidault and Fischer, 1994; Ford and Thomas, 1997). Thus, the commercialization of knowledge assets is fundamentally social (Merton, 1968; Podolny and Stuart, 1995; Hoegl and Wagner, 2005). The particular characteristics of a knowledge asset may be insufficient to explain the likelihood of its commercialization (Sine et al., 2003). Knowledge is indivisible and uncertain, and it is often tacit and difficult to appropriate and transfer (Polanyi, 1962). Therefore, reputation appears to be more important in the commercialization of knowledge than in the commercialization of goods and services (Podolny, 1993; Sine et al., 2003).

However, the potential importance of reputation in the markets for knowledge has long been neglected in prior research. Most works on reputation have focused on the markets for products or services (e.g., Weigelt and Camerer, 1988; Fombrun and Shanley, 1990). The few studies that consider knowledge (e.g., Podolny and Stuart, 1995; Stuart, 1998) do not explore the potential to overcome the imperfections in the knowledge markets by developing reputation. For instance, Stuart (1998) has excluded all one-way technology licensing alliances and has focused on the formation of alliances instead of a firm's performance in knowledge markets. Recently, however, the work of Sine et al. (2003) has considerably deepened our understanding of the effects of external perceptions on interorganizational knowledge transactions. These authors hope that their results "encourage future researchers to consider the importance of prestige as a mechanism for overcoming market failure, particularly in the context of markets for knowledge" (Sine et al., 2003, p. 495).

Sine et al. (2003) have provided empirical evidence for prestige effects in knowledge transactions. Prestige arguments claim that external perceptions are influenced by a large variety of organizational characteristics, such as firm size (Perrow, 1961; Shrum and Wuthnow, 1988). A company's prestige will usually be determined by the firm's behavior in its main business (Perrow, 1961; Podolny, 1993). Thus, a firm's possibilities of actively influencing its prestige in the commercialization of knowledge assets are strongly limited because external knowledge exploitation does not represent the core business of most industrial firms (Escher, 2003; Lichtenthaler, 2005). In contrast to the study of Sine et al. (2003) on universities, it therefore appears to be more promising to focus on reputation to explain the discrepancies between the few highly successful firms and the majority of unsuccessful companies in external knowledge exploitation.

In economic theories on reputation, past performance, future expectations, and the likelihood of transactions are closely related (Weigelt and Camerer, 1988). Reputation for past performance serves as an imperfect substitute for direct knowledge which is particularly important in situations of great uncertainty (Shenkar and Yuchtman-Yaar, 1997; Sine et al., 2003). The performance-based economic perspective distinguishes the concept of reputation from related concepts, such as status, prestige and legitimacy (Rao, 1994; Suchman, 1995; Fombrun, 1996; Washington and Zajac, 2005). As reputation in the knowledge markets may be actively influenced by a firm (Resnick, 2004), it may be built up by highly prestigious and by less prestigious firms. Therefore, we focus on reputation and argue that it may help firms overcome the imperfections in the markets for knowledge. In particular, we address the possibility of reducing the difficulties in identifying knowledge customers, e.g., licensees, by initiating market pull effects.

Thus, our study may provide insights that help firms realize value from their knowledge assets. Knowledge exploitation has recently gained additional importance due to the growing knowledge intensity of most industries (Amesse and Cohendet, 2001), which is accompanied by knowledge convergence and increasing knowledge transactions (Teece, 1998; Grant and Baden-Fuller, 2004). In this context, reputation may contribute to explaining interfirm differences in external knowledge exploitation. Moreover, this paper deepens our understanding of market mechanisms in knowledge markets,