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Where do spinouts come from? The role of technology relatedness and institutional context

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ABSTRACT

This paper conceptualizes and empirically examines organizational and institutional antecedents of spinouts (i.e., new businesses created by employees). We deploy multi-level logistic regression modeling methods on a sub-sample of the Global Entrepreneurship Monitor's 2011 survey covering 29 countries. The results reveal that employees who have experience with activities unrelated to the core technology of their organizations are more likely to spin out entrepreneurial ventures, whereas those with experiences related to the core technology are less likely to do so. In support of recent theory, we find that the strength of intellectual property rights and the availability of venture capital have negative and positive effects, respectively, on the likelihood that employees become entrepreneurs. These institutional factors also moderate the effect of technology relatedness such that spinouts by employees with experiences related to core technology are curbed more severely by stronger intellectual property rights protection regimes and lacking of venture capital.

1. Introduction

Prior literature on spinouts from private business firms suggests they are a controversial phenomenon mainly because incumbent firms may be harmed by the exit of employees who start competing ventures (Campbell et al., 2012). However, the social mobility of employees (e.g., engineers, managers, and scientists) is a key mechanism in knowledge spillovers that provide the essential fodder of economic growth (Agarwal et al., 2007, 2009; Acs et al., 2009; Thompson and Fox-Kean, 2005; Thornton and Thompson, 2001). The knowledge spillover theory of entrepreneurship generally suggests that more value is created by spinouts than is lost by incumbents (Bloom et al., 2013).

A large body of empirical research on spinouts includes studies in industries such as the automobile (Boschma and Wenting, 2007; Klepper, 2007), disk drive (Agarwal et al., 2004; Franco and Filson, 2006), laser (Klepper and Sleeper, 2005), semiconductor (Klepper, 2009b), and biotechnology (Stuart and Sorenson, 2003). The focus of these studies is intra-industry spinouts, which usually produce a subset of their parents' products (Klepper, 2009a). Other studies examine spinouts in various countries such as Sweden and Denmark (e.g. Andersson and Klepper, 2013; Eriksson and Kuhn, 2006; Sørensen and Phillips, 2011; Sørensen, 2007). Unlike the industry studies, country studies examine both intra- and inter-industry spinouts and the definition of spinouts in these studies does not require the condition of being in the same industry as the parent firm (Eriksson and Kuhn, 2006).

Researchers have suggested that employees spin the ideas out that do not fit well with their parents' main activities. For example, Cassiman and Ueda (2006) argue that firms have limited resources and cannot optimally develop all of their innovations. Thus, they select the ones that fit with their core capabilities. Spinouts that are based on ideas unrelated to core technology of a parent firm may produce products that are different from those of their parents (Klepper, 2009a) and cater to the needs of different customer groups (Hellmann, 2007) or different industries. Spinouts that are founded by employees working on ideas related to core technology of their parent firms are more likely to be intra-industry spinouts.

We draw from the work of Hellmann (2007) arguing that organizations often curb innovations on the part of their employees when their managers perceive these initiatives to be distractions from

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assigned work tasks. He likens this condition to the classic problems of exploitation of core activities choking out exploration endeavors within firms (March, 1991). Managers' opposition to employees' participation in non-core activities is unfortunate given that many important organizational innovations may occur via broad exploration in areas peripheral to the firm. Klepper and Thompson (2010) propose that "strategic disagreements" may be the main motive behind spinouts (p. 526). Examples include when managers want to invest in new technology but the firm does not or when the firm wants to invest in new technology but managers do not (Thompson and Chen, 2011).

Contextual factors also play a vital role in spinout formation. Hellmann (2007) argues that firms cut employees out of intellectual property ownership in order to prevent spinouts, noting that when employees own the intellectual property they are more likely to leave to form their own startups. According to Agarwal and Shah (2014), "in weak appropriability regimes, employee founded firms seem to suffer less from a deterrent effect, and capitalize on tacit knowledge and industry specific information gained through employment." (p. 1111). Similarly, the likelihood of employees turning into entrepreneurs is also expected to increase when venture capital is available to help foster spinouts. For instance, Chatterji (2009) suggests that employee entrepreneurs do better in terms of attracting venture capital.

The above arguments lead us to our research questions: Are spinouts more likely to emerge from employee experiences in activities that are related or unrelated to the core technology of the firm? Do the strength of the intellectual property rights regimes and the availability of venture capital in a country encourage or discourage spinouts, especially by employees experienced in activities related to the core technology of the firm? Following Hellmann (2007), we argue that spinouts are less likely to come out of employee experiences in activities related to the core technology of the firm. We also propose that the strength of the intellectual property rights regimes in a country discourages spinouts, especially those that come from employee experiences in organizational activities related to core technology of the firm. Further, we predict that availability of venture capital in a country encourages spinouts, particularly those from employees experienced in activities related to the core technology of the firm.

We test these hypotheses using a unique multisource dataset of 2748 observations in 29 countries derived from the 2011 Global Entrepreneurship Monitor's Adult Population Survey combined with data on institutions from the World Economic Forum. We use a multi-level modeling approach, which allows us to investigate the relationships of individual and institutional factors with spinouts simultaneously.

2. Theoretical background

Organizational experiences are an essential source of knowledge, cognitions, networks, and values motivating entrepreneurial entry (Agarwal and Shah, 2014; Sørensen and Fassiotto, 2011). Therefore, it comes as no surprise that most entrepreneurs emerge out of organizations (Cooper, 1986), with the majority of startups founded by entrepreneurs that go to market with product ideas that were acquired while working for a previous employing organization (Bhide, 2000). It is important to study spinouts because new ventures founded by employees have more technological and market know-how than other startups (Agarwal et al., 2004). They also perform better, and survive longer than internal corporate ventures of diversifying incumbent organizations (Chatterji, 2009).

Much of the literature on spinouts juxtaposes them with spinoffs and internal corporate ventures. We limit our study to spinouts because there are ample studies on spin-offs already. Agarwal et al. (2004) define spinouts as "entrepreneurial ventures by ex-employees of an incumbent firm" (p. 501) in the same industry and operationalize them as a dummy variable with values of 1 (0 otherwise) when "at least one founder of a firm was an ex-employee of an incumbent firm in the year prior to its formation" (p. 511). Hellmann (2007) uses "start-up"[1] to describe a business created by an employee, "if employees own the intellectual property, they may leave to do a start-up." (p. 919). Franco and Filson (2006) define spinouts as "firms started by a former employee of an incumbent firm." (p. 841). Klepper and Sleeper (2005) use 'spinoff'[2] to describe "entrants founded by employees of firms in the same industry." (p. 1291). Likewise, Thompson and Chen (2011) employ the term "employee spinoffs" to refer to "new firms founded by former employees of incumbent firms in the same industry." (p. 455). Andersson and Klepper (2013) define spinoffs as new firms that have a majority of their founders who were employees at the same parent firm. Thus, employee spinoffs (or spinouts) can be differentiated from corporate spinoffs, which are new businesses owned by incumbent organizations. More than a decade after Agarwal et al.'s (2004) research, spinouts still remain a conceptually and empirically underdeveloped phenomenon, with no agreed definition among researchers. The common thread among definitions of spinouts is that they are *independent businesses created by employees*. Thus, we use this definition for the purposes of this paper.

Some explanations for spinouts focus on the pure economic cost benefit analysis of leaving employment (Cassiman and Ueda, 2006). Interestingly, spinouts may be less likely when employers are at the cutting edge of technology because they are better able to keep key personnel interested (Agarwal et al., 2004). Tailored compensation packages (e.g., high wages and stock options) can also prevent valuable employees from leaving to start their own new ventures (Campbell et al., 2012; Carnahan et al., 2012). However, generous remuneration acts as a double-edged sword, keeping more employees from leaving, but also financing those that choose to leave and start their own ventures. Besides, the entrepreneurial aspirations of employees may stem from psychic benefits (e.g., achievement and self-actualization) quite apart from financial rewards (Franco and Filson, 2006). Firms may also share intellectual property rights with key employees and withhold them from others (Hellmann, 2007; Klepper and Sleeper, 2005), or retain the option to buy back the startup later (Rohrbeck et al., 2009).

Researchers have explained spinouts as reactions to organizational crises such as the turnover of key leaders, and limited opportunities for advancement up the corporate ladder (Agarwal et al., 2004). For instance, according to Hellmann (2007), "some entrepreneurs start their companies only after being rejected by their employers." (p. 920). Thus, frustrated employees may consider alternative opportunities outside of firm boundaries to continue to develop the ideas they become attached to due to their high perceived value. Klepper and Thompson (2010) elaborate this idea, noting that employees may exit their firms due to strategic disagreements with their employers to pursue their own ventures. In particular, when employees strongly believe in the prospects of a new product, technology, or business model, but do not find sufficient support for their projects from their employer, they may leave to pursue the new resource or activity. Conversely, when an employer chooses to go with a new technology, product, or business model, but the employees have more faith in the old, they may leave to found a new firm using the older resource or activity.

[1] In Hellmann (2007) a "start-up" describes what we denote as a "spinout."

[2] According to Franco and Filson (2006), what Klepper and Sleeper (2005) refer to as a "spin-off" actually describes a "spinout".