

Sponsors and the alliance activity of new technology-based firms

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Principal Topic

The aim of this paper is to identify empirically the characteristics that lead new technology-based firms (NTBFs) to establish collaborative agreements with other firms and research organizations. Since the seminal work by Teece (1986), the wish of firms to obtain access to complementary assets possessed by other firms that can be combined with their own assets so as to obtain synergistic gains has figured prominently among the motives of alliance formation. This argument is especially pertinent to NTBFs. In fact, these firms are often created with the aim of exploiting commercially an innovative technology; their distinctive technological capabilities relating to an innovative idea make them attractive as alliance partner. In addition, they generally lack the specialized complementary assets that are needed to exploit this idea commercially. Nevertheless, access by NTBFs to specialized complementary assets through alliances may encounter serious obstacles. On the one hand, the search for potential partners by managers of high-tech start-ups is a time consuming activity, with great opportunity costs. These costs are expected to decrease if entrepreneurs can rely on the social network of a "sponsoring organization". In this perspective, venture capital (VC)-backed companies and academic start-ups (ASU, that is companies formed by academic personnel and supported by public research institutions) enjoy an advantage with respect to other NTBFs. On the other hand, if the quality of the distinctive capabilities of a NTBF is unknown to potential partners, adverse selection problems similar to those that NTBFs experience in financial markets arise, hindering the establishment of the alliance. Therefore, the ability of NTBFs to credibly signal their quality and the certification effect of endorsement by a sponsoring institution, be it a VC firm, a public research institution, or a public administration providing subsidies to the R&D activity of the NTBF, play a key role in favoring alliance formation.

Methodology/Key Propositions

In the empirical section of the paper, we analyze the determinants of alliance formation through the estimates of several econometric models using longitudinal data relating to a sample composed of 550 Italian young independent firms that operate in high-tech sectors, in manufacturing and services and are observed during the period 1994-2003. All sample firms have been extracted from the RITA database, the most complete and reliable source of information on Italian NTBFs. RITA provides information on the date in which firms established their first technological and production/commercial alliances. It also includes detailed information on all EU sponsored research joint ventures (RJV) in which sample firms were involved. First, we study through survival data analysis models factors that influence the hazard rate of the first alliance established by sample firms. Then, we estimate competing risk models allowing to distinguish between technological and production/commercial alliances. Lastly, we estimate discrete choice panel data models of the likelihood of firm i establishing in year t one EU funded RJV (or more of them, actually a rather rare event). The set of explanatory variables includes: dummy variables indicating whether the firm is VC-backed and originated from a public research institution and thus it enjoys the support of sponsors; a fine-grained description of the human capital characteristics of NTBFs' founding teams; firms' size and patent activity over time; a dummy variable indicating previous access to public subsidies; a series of industry- and location-specific control variables.

Results and Implications

The main results of the econometric analysis can be summarized as follows. First, NTBFs turn out to greatly benefit from the network of social contacts and the endorsement of sponsoring institutions. In fact, ASUs and VC-backed firms are significantly more likely than other firms to engage in collaborative relations. This especially applies to their first collaboration. Second, larger NTBFs are more likely to establish alliances with other firms and institutions, independently of the nature of the collaboration. Third, the innovative

capabilities of firms proxied by patent activity, have a positive effect on the formation of EU funded RJVs, but they do not significantly affect the hazard rate of the first collaboration. Fourth, the human capital of founders is found to play a negligible role, with the exception of university education in managerial and economic fields which positively influences the hazard rate of the first commercial alliance. Lastly, there is no evidence that access to public subsidies by a NTBF results in a certification effect that makes formation of the first alliance easier. Conversely, access to public subsidies has a sizable positive effect on the likelihood of the firm being subsequently involved in EU funded RJVs. This possibly suggests that there are learning by doing effects relating to obtaining public funds, independently of the source (i.e. national and local authorities or the EU). Altogether, these results confirm the view that for most NTBFs, great obstacles hinder the search for specialized complementary assets through the formation of alliances. The ability of these firms to overcome these obstacles, on their own or through the help of sponsoring institutions, play a key role in influencing competitive success.

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