Journal of Banking & Finance 37 (2013) 707–716

Contents lists available at SciVerse ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

The investment strategies of publicly sponsored venture capital funds

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ARTICLE INFO

Article history:
Received 29 March 2012
Accepted 10 October 2012
Available online 8 November 2012

JEL classification:
G24
G38

Keywords:
Public venture capital
Duration
Write-off

ABSTRACT

This paper investigates the effects of public ownership on the investment strategy of hybrid VC funds. We exploit a unique dataset containing data for all of the venture capital funds in Europe that received financial support from the European Investment Fund (EIF) during the years 1998–2007. The dataset includes 179 VC funds that invested in 2482 companies. We find that the level of public ownership shows a weak negative correlation with the likelihood of observing a write-off and that a higher public share is associated with a longer duration for the investment. The latter effect is more relevant for those investments that generate intermediate financial returns. The results are robust to the introduction of controls at the target firm level and for financial market conditions.

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1. Introduction

It is well known that financial constraints are particularly acute for innovative entrepreneurial firms because their investment returns are uncertain, they have little collateral to secure debt, they are subject to higher informational frictions and their capital, which is mostly intangible, is difficult to redeploy and is characterized by relevant bankruptcy costs (Carpenter and Petersen, 2002; Hall, 2002).[1] As entrepreneurial activities increasingly contribute to innovation and economic growth, policy makers have focused on implementing policies that enhance financing offerings for entrepreneurs by influencing their incentives and payoffs. In particular, evidence that more available venture capital (VC) allows for an increase in successful entrepreneurial activity (see, for example, Levine, 1997; Kortum and Lerner, 2000) has led many governments and regional authorities worldwide to implement programs to mobilize venture capital.

The available evidence on this type of policy intervention shows that there is a high degree of heterogeneity in the models that are adopted to support the development of VC funds in specific regions/countries and a contingent lack of comprehensive evaluation of the effects that they have encouraged. However, several works in the field of entrepreneurial finance have attempted to assess the economic properties, the efficacy, the social desirability and the risks of using this type of policy as a tool to support entrepreneurship and innovation (Gompers and Lerner, 1998; Cressy, 2002; Lerner, 2002; Leleux and Surlemont, 2003; Armour and Cumming, 2006; Da Rin et al., 2006). A first stream of research has focused on the impact of public policies on the environmental conditions in which private VC firms operate, including tax regimes for private equity operators, legal requirements for IPOs and LBOs, corporate governance legislation and the level of development of the financial markets (Da Rin et al., 2006; Leleux and Surlemont, 2003; Gilson, 2003). A second stream of research has addressed a specific type of public policy intervention: the direct co-funding of venture capital funds. Vehicles by which independent VC firms are used to channel and allocate public financial support are often termed “hybrid funds” (Jääskeläinen et al., 2007; NESTA, 2009). The present study focuses on this second type of public intervention.

Direct public support of VC initiatives, in principle tailored to the specific institutional context of the economic region of interest,[2] has been aimed at increasing the aggregate pool of capital for entrepreneurs. In particular, the rationales often advocated for these policy interventions are that (i) the private sector provides insufficient capital to new, innovative firms and (ii) the government can drive the investment selection process towards investment opportu-

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[1] See Scellato (2007), Ughetto (2008), Ughetto (2009), and Crespi and Scellato (2010) among others for recent empirical analyses on firms' financial constraints.

[2] Among the most relevant examples worldwide are the Australian Innovation Investment Fund (2006), the Yozma Program in Israel (1993) and the Small Business Investment Companies Program (SBIC) in the US. In Europe, we find the High Tech Fund of Funds in the UK, the Danish fund Vækstfonden, the Fund for the Promotion of Venture Capital in France, the German fund ERP-EIF Dachfonds and the Dutch fund TechnoPartner Seed facility.

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http://dx.doi.org/10.1016/j.jbankfin.2012.10.018

nities that will ultimately yield high social returns (in addition to the private ones) (Lerner, 2002).

The present study investigates the effects of public ownership on the investment strategy of hybrid VC funds; these effects are ultimately reflected both in the ex-ante selection process for the target companies and in their post-acquisition management. The intensity of public ownership can have different implications along these two dimensions.

We use a dataset of 179 venture capital funds that received financial support from the European Investment Fund (EIF), the European Union body specializing in SME equity financing.[3] The primary advantage of the EIF dataset is the high reliability and the completeness of the information available on each deal. For its investment activity, EIF deploys either its own resources or resources mandated by its shareholders. EIF's investment in the analyzed funds is regulated by the Risk Capital Mandate (European Investment Bank). Target VC funds must be in compliance with the EIF's objectives and operational guidelines, as well as with the Risk Capital Mandate Investment Guidelines. Investments in eligible funds are made after a detailed due diligence is carried out on all aspects of the investment proposal. Particular attention is paid to the quality of the funds' management teams, to their degree of focus on the type of companies targeted by the Mandate facility and to their potential to contribute to the growth of these companies while, at the same time, generating returns consistent with market conditions.

The paper adds to the literature in two ways. First, due to the novelty and richness of the database at our disposal, we provide new evidence on the effects of the intensity of public ownership on venture capital investment strategies in Europe at an unparalleled level with respect to the extant studies in the field, which generally have a national focus or analyze limited samples.[4] Second, we contribute methodologically to identifying the different factors that affect the observed outcomes of the investment activity of hybrid VC funds. From a methodological perspective, this is far from an easy task when an empirical study is run on funds that are still operating at the time of the analysis.

The results indicate that even after controlling for the funds' and the portfolio firms' characteristics, as well as for the financial market's conditions, the level of public ownership affects the selection of investments and their subsequent management. In this paper, we use the incidence of write-offs to look at the ex-ante selection process for the target companies, while we focus on the timing of the exit to examine their post-investment management. We find that (i) the level of public ownership shows a weak negative correlation with the likelihood of observing a write-off, and (ii) a higher public share is associated with a longer duration for the investment. The latter effect is more relevant for those investments that generate intermediate financial returns. We argue that these firms are retained in a fund's portfolio – even if their return profile might not be completely satisfactory from a private investor's perspective – because they are expected to generate significant additional social returns.

The remainder of this paper is organized as follows. Section 2 discusses the previous research on the rationales and effects of direct public intervention in the VC industry. Section 3 clarifies our research setting and proposes testable hypotheses. Section 4 introduces the datasets and the summary statistics. Section 5 presents the econometric models used and discusses the results. In Section 6, we draw conclusions and explain the implications of our findings.

2. Rationales and effects of direct public intervention in the VC market

Public venture capital initiatives have been deployed in numerous countries to channel and allocate public financial support to entrepreneurial firms. A large body of research has contributed to identifying successful experiences, the critical aspects for designing effective policy initiatives and any possible distortions derived from public involvement in the venture capital market (Lerner, 1999; Maula and Murray, 2003; Avnimelech and Teubal, 2006; Cumming and MacIntosh, 2006; Cumming, 2007; Liu and Murray, 2009; NESTA, 2009).

Economic theory suggests two primary rationales for direct public intervention in the VC market. First, the presence of the public investor in a venture capital fund should enhance the capacity of the VC market to attract private capital resources (*seeding hypothesis*, Leleux and Surlemont, 2003). The seeding hypothesis implies a positive impact of public intervention along two dimensions: helping underdeveloped VC market to reach critical dimensions; certifying the quality of funds to private investors, thus lowering the informational asymmetries that might have otherwise precluded investments. The direct consequence of this effect is that the venture capital funds with public involvement will be more likely to attract capital inflows from private investors (Cumming, 2007). However, scholars have also pointed out that the direct involvement of public bodies in new venture investment might generate a risk of inadvertent market disruption through the potential misallocation of capital and the consequent "crowding out" of private investors[5] (Leleux and Surlemont, 2003; Armour and Cumming, 2006; Cumming and MacIntosh, 2006).

A second rationale emphasizes the role played by public investment in directing private capital towards investment opportunities that otherwise would have not been considered (*herding hypothesis*, Devenow and Welch, 1996). Herding behavior effects associated with the increasing presence of public capital affect the investment strategy of hybrid funds along two distinct dimensions. First, the presence of the public body can modify the selection process by increasing the quality of information about the investments (at least in specific areas) or by revealing different risk attitudes; in these cases herding behavior effects transform the distribution of financial returns. Second, government can identify investments that will ultimately yield high social returns or positive externalities (*spillover hypothesis*); in these cases, herding behavior effects transform the distribution of social returns. The preference for social returns might contrast with the investment strategy of private investors; the investment selection process of a hybrid venture capital fund could take into account several economic variables and is not restricted to considering financial returns as private investors would demand.[6] While private sector

[3] EIF is primarily owned by the European Investment Bank (61.9%) and the European Commission (30%). The remaining shareholding comes from public or private banks and financial institutions (8.1%). EIF conveys public financial resources into a large number of VC funds in Europe. By the end of 2010, the EIF had invested in over 350 VC and private equity funds, with net commitments of around 4.5 billion euros.

[4] The few attempts to compare different experiences in a greater number of countries are generally of a qualitative nature (Gilson, 2003; Maula and Murray, 2003) or based on simulations (Jääskeläinen et al., 2007). Most existing studies have analyzed public programs to support VC by assessing the program's characteristics at a point in time and in one particular country, thus yielding limited generalizable implications. The main reason for these limitations is that publicly sponsored VC funds differ in their underlying contractual structures and in the specific national institutional environments in which they operate. Moreover, the studies in this field do not evaluate the performances of publicly sponsored venture capital funds at the fund level; only aggregated data are analyzed or proxies for performance measures are used.

[5] If public initiatives finance firms at below-market conditions, a cream-skimming effect that adversely selects the residual opportunities left to private investors could emerge.

[6] The criteria that are used for allocating private capital – in particular from institutional investors – when VC funds are selected is surveyed in Groh and von Liechtenstein (2011).

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