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Governance and resource interaction in networks. The role of venture capital in a biotech start-up

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ABSTRACT

This paper examines venture capital (VC) governance in innovation processes. The VC literature often presents the relationship between a VC firm and a start-up as dyadic and analyzes it with agency theory. In contrast, this paper deploys the resource interaction framework presented in Håkansson and Waluszewski (2002) to governance and innovation in networks. The paper reports an in-depth case study of Pyrosequencing, a Swedish biotech firm financed with VC. The results from this study reveal how the relationship between a VC and a start-up company is embedded in a wider network and how the governance of the VC spreads in the surrounding network and influences a start-up's possibilities to develop organizational and technical resource interfaces to critical counterparts such as suppliers and customers.

1. Introduction

Venture capital (VC) firms invest in entrepreneurial firms perceived as having high potential but also high risk, only 2 of 10 projects that VC finances survive (Gompers & Lerner, 1999). VC firms are active owners, they often sit on the board of directors and participate actively in decision-making in the firms they finance (Jain, 2001; Sahlman, 1990). Research about the relationship between a VC firm and a start-up is extensive (e.g. Murray, 1996; Perry, 1988; Sapienza & De Clercq, 2000; Shepherd & Zacharakis, 2001). However, despite considerable literature on how VCs add value as active owners (Amit, Brander, & Zott, 1998; Sahlman, 1990; Sapienza, Manigart, & Vermeir, 1996; Timmons & Bygrave, 1986), there is little research on how VC governance influences innovation in *networks*.

This stems from an important analytical assumption. Most existing research on VC assumes that the best way to analyze the relationship between a VC firm and a start-up is through agency theory (Sahlman, 1990; Sapienza & De Clercq, 2000). As a consequence, such research treats VC-start-up relationships as dyadic, whereby the principal (the VC firm) designs controls to govern its investments in an agent (the start-up and its management). The assumption is that the agent is driven by self-interest and guile. This perspective ignores the network that embeds the relationship (Granovetter, 1992; Håkansson & Snehota, 1995). Further, agency theory is not a theory concerned with innovation and ignores therefore also the using of physical artifacts, forming technical systems (Hughes, 1983), and their influence upon exchange relationships and development of networks (Anderson, Håkansson, & Johanson, 1994; Baraldi & Strömsten, 2009; Håkansson & Lind, 2004; Håkansson & Waluszewski, 2002; Halinen & Törnroos, 1998).

Some researchers claim that VC is an impatient form of ownership (e.g. Van de Ven, Polley, Garud, & Venkataraman, 1999). One reason is because third parties, such as institutional investors, finance VC firms' investment in start-ups in a fund often with a limited lifetime, frequently 10 years. Hence a VC invests with the aim to exit within a certain period of time (Gompers & Lerner, 1999). This explains their impatience and desire to accelerate the innovation process in the firms they invest in. A dyadic agency-principal perspective that colors much of the VC literature ignores important consequences of accelerating the commercialization process and associated governance issues when relationships and networks matters (Ford et al., 1998).

The interface between innovation and corporate governance is an under researched area (O'Sullivan, 2000). One reason is that dominant theories of corporate governance, such as agency theory, "do not systematically incorporate an analysis of the economics of innovation" (O'Sullivan, 2000, p. 413). This article explores how VC ownership and governance influence the innovation process when relationships and networks are critical contextual factors. It draws upon a framework (Håkansson & Waluszewski, 2002, 2007), which analyzes how resources (two technical—products and facilities; and two

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organizational organizational units and relationships) interact in industrial networks. This article uses this framework to trace how VC ownership affects the development, purchase and sale of products; the production and utilization of facilities; organizational units' strategic decisions about scope and relevant knowledge areas; and a portfolio firm's ability to develop relationships with suppliers and customers. This article tries to remedy the knowledge gap and the call for more research on the interface between innovation and corporate governance.

This article is organized as follows. First, it discusses the governance VC provides and how this governance can influence the innovation process, and how ensuing controls determine the priorities and behavior of a VC firm. It then introduces the resource interaction framework (Håkansson & Waluszewski, 2002) and discusses it with reference to innovation within networks, and possible effects of VC governance on organizational and technical resources and their interfaces. After describing the research methods, the article reports an in-depth case study of Pyrosequencing, a Swedish biotech firm backed with VC money. The case illustrates how a 4R approach raises fresh issues about governance and its role in innovation processes in networks. The paper ends by discussing the implications of VC for innovation, especially the tensions between the VC firm's need for speed and a start-up's time-consuming innovation processes where resources and interfaces constantly change in the surrounding network.

2. Venture capital governance in the innovation process

Sahlman (1990) defined VC as a professionally managed pool of capital invested in private companies at various stages of their development. VC firms actively participate in the decision making processes of the ventures they invest in. Typically they also become members of the board of directors and assist management with advice and support. Hence, VC represents a specific type of corporate governance that takes an active part in start-up companies' innovation processes.

In the discussions by researchers, policy-makers or journalists, the most common interpretation is that VC is a key resource in a start-up's journey toward becoming an established company. Well known companies (most often US companies like Apple, Cisco, Intel, Microsoft, Genentech, Yahoo! and Amazon.com), that have received VC financing often serve as examples of what is possible when innovative ideas are combined with "intelligent" financing. Without VC, argue Gompers and Lerner (2001, p. 1), "many entrepreneurs would never attract the resources they need to quickly turn their promising ideas into commercial success". Or, as Powell, Koput, Bowie, and Smith-Doerrs (2002, p. 293), put it "Venture capital is one of the key elements of the infrastructure of innovation".

A VC firm provides three critical resources to a start-up enterprise. First, *money* expands the capacity to transform an idea or a new solution from individuals or a project into a company with established customer interfaces (i.e., Barney, Fiet, Busenitz, & Moesel, 1996). Money aids start-ups to grow, initiate product development projects, extend its specialized activities, invest in equipment, hire new staff, and use outside partners for product development work. Second, the VC firm not only provides capital but also experience, in the form of *knowledge* and foresight about the risks and opportunities that entrepreneurs face (Barney et al., 1996; Sahlman, 1990). Powell et al. (2002) stress the importance of combining money and knowledge when financing high-tech enterprises. As Gompers and Lerner (2001, p. 19) state, "Most high-technology entrepreneurs are convinced that they have exciting and dynamic ideas… What most entrepreneurs do not see clearly, however, are the risks facing their business." This uncertainty encompasses critical issues, such as who are the potential users, suppliers and strategic partners, and potential market size (Gompers and Lerner, 2001, p. 20). Third, the VC firm provides a network of *relationships* including financial, commercial or technology-based contacts, for instance a skillful venture capitalist can often activate a wide network of industrial contracts to help a new venture find suppliers and customers in various ways (Fried, Bruton, & Hisrich, 1998). Being part of a VC network can help transfer experience and knowledge between firms and establish contacts with third parties such as new investors and investment banks. Being part of a "good" network helps young firms because they often face the "liability of newness" (Smith & Lohrke, 2008; Stinchcombe, 1965).

The VC literature reflects the extensive influence of agency theory (e.g. Fama & Jensen, 1983). This theory analyzes how a principal, the VC firm, can monitor an agent, the start-up and its management, to align their interests to create shareholder value. A major theme is information asymmetry between the parties and how this creates "moral hazards". Basically, the agent knows more about the firm's operations and could, therefore, cheat the principal, who develops mechanisms to protect himself. Alignment of interests is one way of avoiding opportunistic behavior; consequently VC often encourages managers to become part-owners. (Gompers & Lerner, 2001; Sahlman, 1990).

Agency theory helps explicate the legal structure of a VC firm, which often involves a private equity partnership (e.g. Gompers & Lerner, 1999; Sahlman, 1990). The general partners (the VC management) manage the firm, monitor its investments funded mainly by limited partners (often institutional investors like mutual funds, pension funds or insurance companies), and find investments to increase the limited partner's money over a set time (often 10 years) after which equity in the fund must be returned to the limited partners. The limited time horizon exists to protect investors from VCs acting opportunistically (Freeman, 1999; Gompers & Lerner, 2001; Sahlman, 1990). The exit is always present, explicitly or implicitly, in relationships between a VC firm and a start-up. Further, there is also a tendency among young VC's to take their portfolio firms public through initial public offering (IPO) too early in order to "signal their ability to potential investors" (Gompers & Lerner, 1999, p. 239). This phenomenon is called "grandstanding". One cost of grandstanding is a lower price for the portfolio firm when it goes public. However, there are also other costs, less well researched, associated with grandstanding that might be harmful for the portfolio firm in the long run (Gompers & Lerner, 1999).

VC firms often use milestones or similar controls to secure rapid results and to monitor themselves and the firms they have invested in (e.g., Davila, 2005). Making the emerging company's management accountable for attaining milestones within a set timescale introduces stepwise financing through a stage/gate process. When a VC firm uses staged financing, the start-up must meet milestones before the VC invests more money (Gompers & Lerner, 1999). The aim of this procedure is to reduce the inherent risk of innovation processes and hinder opportunistic behavior from management in the portfolio firms.

In summary, the governance mechanisms of a VC firm reinforce its interest in compressing the innovation process of the start-ups it invests in. However, emphasizing principal-agent attributes and consequently picturing the relationship between the VC firm and the start-up (Sahlman, 1990) as strictly dyadic ignores how relationships are embedded in a wider network of customers, suppliers and third parties (Håkansson & Snehota, 1995). These networks provide the topic of discussion below.

3. Resource interaction and innovation in networks

Van de Ven et al. (1999: ix) characterize the transformation of innovations into commercial solutions as "highly unpredictable and